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RAIL-ROAD NEWS.

Great Speed.

Some extraordinary engine running was performed on the railroads in Massachusetts in collecting the election returns. The locomotive on the Connecticut River Railroad, under the personal direction of John B. Wyman, the superintendent of the road, ran from the Vermont line to Springfield—fifty miles—making six stops on the way, in fifty-three minutes! This is an average speed of more than a mile a minute, running time. The locomotive on the Western road ran from Pittsfield to Springfield—fifty-four miles—in an hour and ten minutes, including one stop for wood and water. This is very fast running considering the numerous curves of the route.

Shocking Railroad Accident.

Michael Brennan was shockingly injured this morning on the railroad, near the Merrimack House. It seems he was trying to jump on the bunter of one of a train of sand cars, and in doing so, fell, and the cars passed over him. His body was so much mangled that the bowels protruded, and both his legs were fractured. It was thought he could not survive.—[Lowell Courier, 4th.

Railroad Movements.

The chairman of the Camden and Cape May Railroad Company announces that the several routes have been surveyed, and that the engineer's report will be given in a few days. The Camden and Absecum Company are progressing quite spiritedly with the work on their road, and are contracting for materials, &c.

Stoneham Branch Railroad.

We understand that the directors of this road have decided to extend it to the Lowell Railroad. The charter of this company authorizes them to unite their road either with the Lowell Railroad, or the Medford Branch of the Boston and Maine. Stoneham is one of the most beautiful and growing towns in the vicinity of Boston, and when connected therewith by a railroad will be a most desirable place of residence. We learn that the work is under contract, and is to be completed this winter, the distance being less than two miles.

A New Railroad.

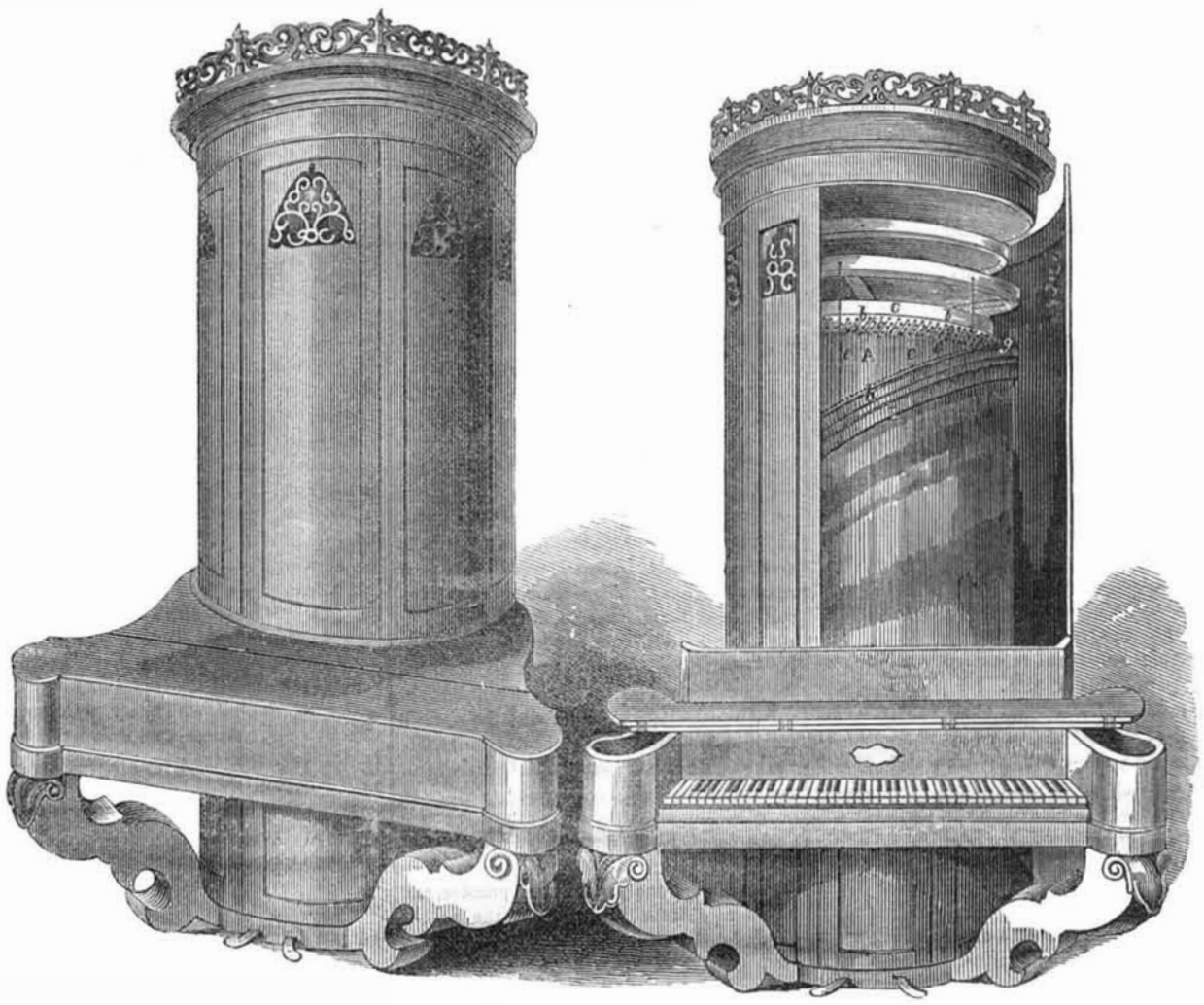
A project is on foot, and is meeting with encouragement, for the extension of the North Danvers Railroad into Haverhill—$10,000 worth of stock now remains to be taken up.

We see it stated in the "Ohio State Journal," that there is a movement on foot for holding a National Railroad Convention somewhere in the Great West, at a time to be named hereafter, to bring the people of the East, West, North and South together, for the purpose of consultation and the acquisition of necessary intelligence relating to the interests of the country.

In the English mining districts the colliers are agitating for a rise of wages.

PATENT CULINDRON PIANOFORTE.

Figure 1. Figure 2.

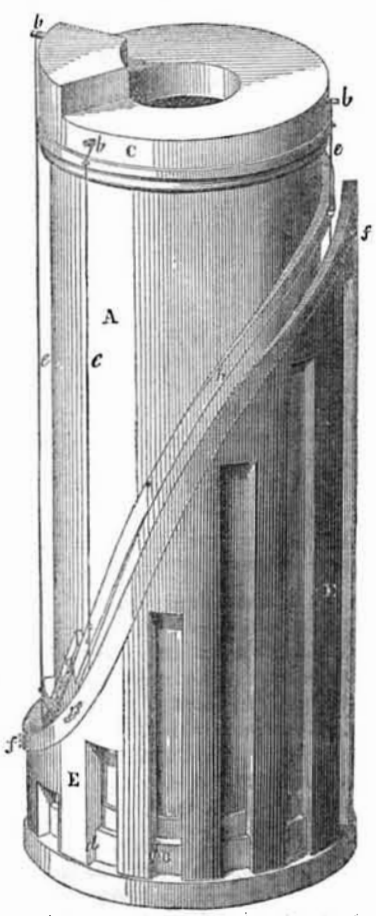


The annexed engravings are views of an improvement in Pianofortes, invented by Alfred Speer, and Ernest Marx, of Aquackanonk, N. J., and for which a patent was granted on the 28th of last September (1852). Figure 1 is a perspective view of the instrument; fig. 2 is a front view, with the keys, sounding-board, and strings exposed. Fig. 3 is a perspective view, showing the sounding-board with all the parts to which the strings are connected. The same letters refer to like parts.

The improvement relates to the sounding-board of these instruments, and consists in making the same in the form of a hollow cylinder, cone, or prism, or part of such figures, the said board having its ends secured between two discs or heads. The strings, cap, tuning-block, and all parts of the instrument are suitably arranged around it to produce the sound. The principal object of making the board of this form, is to improve the sound,—afford facilities for making double instruments with more than one set of strings in a single case, &c. The instrument is very ornamental indeed; it can be made of a gothic, or any other pattern, and will form a more beautiful piece of parlor furniture than the common pianoforte.

A is the sounding-board, which is represented to be in the form of a hollow cylinder; it is secured between two strong wooden discs, B C (fig. 2), which are well braced together by braces or by tension rods. The top disc, C, serves for a tuning-block, the tuning pins, *b b*, being screwed into its periphery. E is the cap, made of cast-iron; its form is part of a cylinder, so that all parts of its face may be at an equal distance from the sounding-board; it rests upon, and is firmly secured to the disc, B, having a deep flange, *c*, which extends over the outside of the disc; it is recessed around at *d d*, to fit over the periphery of the disc, so as to make the combination secure and firm;

Fig. 3.



e e are the strings, only a few of which are shown; they are secured in loops to the pins, *f f*, in the cap, and pass through holes, then over the bridge, *g h*, to the tuning pins, *b b*, in disc C.

The sounding-board, as shown in the engraving, is a perfect unbroken cylinder, which the patentees believe to be the best, but any of the forms heretofore specified, as embracing the principle, may also be employed. This instrument has a sounding-board of two feet in diameter, and is six feet high, consequently it is six feet and four inches (nearly) in circumference, or a little over thirty-seven square feet. This great surface, together with the cylindrical form of the sounding-board, the makers assure us, greatly improves the tone of the instrument, both as respects sweetness and strength. The strings being arranged around the sounding-board, are not so liable to get out of order as those arranged on one side. Two, three, or more sets of strings may be arranged round one sounding-board; and with keys for each set, a number of performers may be able to play at the same time, and yet no more room would be occupied than with a common flat piano. Its form allows of its being placed at the side, or the centre of a room, and yet have full length strings.

More information may be obtained by letter addressed to the patentees.

Colored Silk Cocoons.

A Monsieur Rollin lately exhibited before the French Academy, a silkworm's cocoon of a rose color; remarkable because the color was produced by feeding the worms upon mulberry leaves sprinkled with chico (Bigonia chica.) A cocoon had been exhibited on a former occasion of a blue tint, produced by sprinkling indigo upon the mulberry leaves. The tint in the present case was, however, much stronger than that of the blue cocoon.

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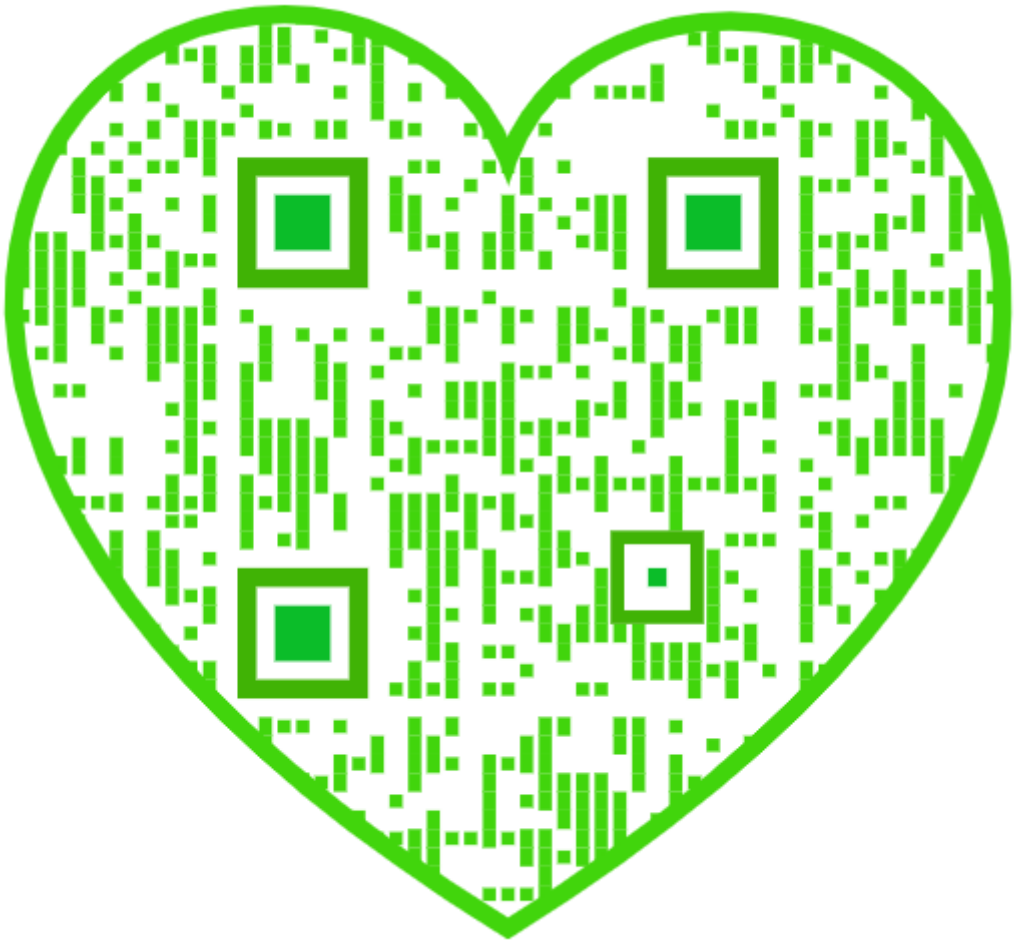

MISCELLANEOUS.

The Useful Man.

We have scientific writers of several kinds, and their number is continually increasing; there is no harm in that, but their studies are mainly directed to form theorists capable of ordering workmen, but unable to put their own hands to the work. Banish to their country seats the most celebrated engineers, and they will be as embarrassed to perform the smallest thing for themselves, as our statesmen, magistrates, professors, poets, painters, and wealthy merchants. If a lamp leaks, a coffee-pot is broken, a screw lost, a lock damaged, or a chair on three legs—and for a thousand other petty trifles—they must send to the neighboring town. If it is an emergency, a messenger on horseback must be dispatched, with perhaps a kettle round his neck, and a couple of watering-pots in his hand: there is no poor Robinson Crusoe to be found in these oases of luxury and indigence. There is, therefore, wanting a class of men who have a slight knowledge, not enough to *manufacture* but sufficient to *repair* every thing,—who can place a little solder on this place, a little glue on that; clean their employer's gun or watch; forge a bolt, take down a stove, bore a hole and fit in a screw, patch up a valuable piece of porcelain, and adjust a hand organ; who can give one blow with a hammer and another on a flute; bend a piece of wire, and tie up a bell rope; saw off the end of a plank, plane a little off the door, make a shovel-full of mortar, mix up a little plaster, lay a coating of color on a wall, and take out a spot of it on your coat,—in short, who can frame a picture, prevent a chimney from smoking, varnish a piece of furniture, and, in case of necessity, put a shoe on a horse, &c. &c.

In our society of imbeciles, each of these things requires a particular workman, who must be sent for several times, and who only troubles himself with what concerns his own trade and nothing else. What a heap of bills and accounts at the end of the year—they are never done coming in. While the workmen whisper to one another, "what an awkward helpless set of fellows these rich men are—obliged to run after us to open a trunk, splice a rope, make a hole in a strap, join a hoop, put a pin in the wheel of a child's coach, and a tail to the kite. All those great men who make laws, and do not know how to work with their ten fingers, can teach us nothing. I have seen some who do not know the difference between tin and lead—between gum arabic and gum lac; they take iron pyrites for silver ore, oats for wheat, and do not know how the bread they eat is made. I have heard of one, who, wishing to instruct his son, attached to an embassy, said to him, 'You see that big tree, that is a poplar, pine boards are made out of it.' And yet they always have a book in their hand, and send their children to school up to twenty years of age. What in heaven's name can they learn there? They must be very thick-headed not to know as much as we who have never learnt anything. It is not for want of time, for they do not know what to do with themselves all day."

These are the very natural expressions of work-people among themselves; but let us return to our "Useful Man." Is it possible that a man of this kind would not be valuable on a gentleman's country-seat—that he would not be sought after and paid the same as a good cook. Well, any young countryman that knows how to read, write, and cypher would require, at the utmost, two years at a special school to learn to do all the repairing that we have mentioned, and much more. Five days passed in the workshop of a turner, cabinet-maker, smith, locksmith, tinman, glazier, plumber, sadler, frame maker, &c., would be sufficient, with a few explanations, and receipts written in a memorandum book to enable him to mend any thing belonging to the above trades. A fortnight passed with a clock-maker, gunsmith, and lamp maker, would give him an insight into the fabrication of arms, watches, lamps, locks, and principal tools of each of these trades. Some lessons of common drawing, given at school between the visits to the workshops, would complete the education of the useful man. A workshop could be set apart for him in the house; the tools would not be expensive—a small joiner's bench, a vise, a few files, pincers, and chisels, a plane, hammer, saw, and soldering iron, some screw taps, a small anvil, ditto furnace, and a grindstone; add to these a glazier's diamond, a hand drill, some bottles of oil, varnish, and acid, a little mastic and wax, a glue pot, and a few pieces of tin and brass wire, and you have the entire fittings of the useful man's workshop, which his employer will very soon be willing to augment by the addition of a lathe, a small forge, and a galvanic battery, with some crucibles and porcelain vessels.

There would thus be completed, insensibly, as occasion presented, a country workshop, which would be the delight of the owner, to whom all these nick-knacks of handicraft are a sealed secret, and who, in a short time, would become an inventor like his useful man. This latter would be the favorite of the children, for he would mend their little balloons, little wagons, and little mills; the favorite of the old folks, whose spectacles he would repair; the favorite of the cook, for he could tinker up her pans, and fresh solder the coffee-pot; the favorite of the lady, because he could mend her fan and make the drawers of the cabinet to slide in smoothly; the favorite of the neighbors, who would be ready to have him to dinner, to put a string to the piano, arrange the French clock, and see what is the matter with the pump. In fact, I can assure you that the useful man would be the envy of the township, provided he knows neither Latin nor algebra, and reads no political papers,—if he does this, he will be like every body else, and the best thing that can be done will be to give him a letter of recommendation to your nearest neighbor. There would be a vast exportation of useful men to the Brazils, Peru, and Mexico, every hacienda would like to have one; they would be the preservers, the civilizers of the new world; the Russian boyard would contend for them with the Spanish hidalgo; the Hungarian magnates with the Turkish pachas, and perhaps the Chinese mandarin with the Indian nabob. The useful man would be the necessary link in the chain that ought connect the man of science and the daily workman, for he would lay one hand on the theory and the other on the practice, and would often take the place of the two.—[Translated from "L'Invention."

Justice to Philippe de Girard.

The above inscription was on the flag of one of the deputations of Vaucluse to Louis Napoleon, on the occasion of his late tour in the South of France. Philippe de Girard was the inventor of a flax spinning machine which gained the prize of a million of francs offered by Napoleon Bonaparte for the best invention of this kind. The fall of the Empire did not allow Napoleon to fulfill his promise, and the inhabitants of the Commune represented by the above deputation, now demand its fulfillment by his nephew.

We observe, in the "Genie Industriel," that a patent has been lately taken out, in France, for making a species of cloth from the refuse of cotton, wool, hemp, and flax; these materials are cut up very fine and then carded; they are afterwards passed through rollers and covered with an oily substance, to unite them firmly, after which they are pressed down tight by flat plates.

In the same periodical is a recipe for a newly patented soap for fulling cloth; this soap is composed of 67 parts of a solution of caustic potash, and 33 parts of olive oil. After being kept in motion for a few hours, a combination takes place, when the soap is made.

Human Ingenuity.

In the formation of a single locomotive steam engine, there are no fewer than 5,416 pieces to be put together, and these require to be as accurately adjusted as the works of a watch. Every watch consists of at least 202 pieces, employing probably 215 persons, distributed among 40 trades, to say nothing of the tool makers for all these.

Syrup of Asafetida.

To make a syrup of a most useful medicine, but which has an unpleasant odor and bitter taste, take asafetida one ounce, boiling water one pint, sugar two pounds (the asafetida must be first triturated with water in a mortar) and dissolve all together with a moderate heat. This is an excellent antispasmodic.

Death by Machinery.

C. W. Beard, employed at the Lowell Bleachery, met his death a short time ago in a very painful manner.

While stooping over to oil a shaft, which revolves about 118 times in a minute, his clothes had become entangled with the end of the shaft, by which means he was carried around with it, and his head and limbs, at every revolution, were brought in forcible contact with an adjacent wall, and also with the hanger of the shaft, which is a perpendicular stationary cast-iron, in a perforation of which the shaft plays. How often he had been whirled around this shaft it was impossible to determine, but his clothing was mostly torn from his body; his boots, after having the soles ripped off, were stripped from his feet, and thrown to a distance of some twenty feet from the shaft; his stockings and hat, and a portion of his watch-chain, were thrown in different directions to a considerable distance, and the remainder of his clothing was still revolving round the shaft. His body and limbs were of course shockingly mangled, and the blood and locks of hair on the hanger bore painful testimony to what he must have suffered during his fearful gyrations.

When he became disengaged from the shaft, it appears that he fell under it on the ground, a distance of some four or five feet, whence he had dragged himself about five or six feet to the place where he was lying when found. The unfortunate man was immediately removed to a room in the building, but expired almost immediately.

Old Ring.

At the last meeting of the New York Historical Society, Mr. De Peyster, the Vice President, submitted to the Society wax impressions of a very ancient gold ring, found by an Arab laborer near the great Pyramid of Cheops. The ring weighed about three English sovereigns. The tomb near which it was found was that of a high priest. Professor Lepsius, Chevalier Bunson, Mr. R. S. Poole, Rev. J. Leader, of Cairo, and other distinguished Egyptian scholars, agreed in considering this ring authentic, and place its date at three thousand years before Christ. The beauty of the hieroglyphic symbols engraved upon its oval face could not now be surpassed. The delicacy and sharpness of the etching could only be properly seen by a microscope. It was doubtless the royal signet, and was in keeping of the high priest; and the particular sovereign to whom it had belonged was supposed to have been the second Pharaoh of the fourth dynasty. The wax impressions were handed around among the members, and the ring itself afterwards shown by Mr. De Peyster. It bears mark of having been much worn.

Champagne.

The average quantity of genuine champagne annually produced is said to exceed fifty millions of bottles, a quantity, however, quite insufficient to meet the public demand, as the great number of establishments for the productions of spurious champagne attest. It has been stated on good authority, that in one establishment alone upward of 500,000 bottles of so called champagne, made principally from the stalks of rhubarb, are annually sold.—Some idea may be formed of the relative consumption of real champagne by different countries from the following return of the sales in 1843 of the Department of the Marne. The total quantity amounted to 2,689,000 bottles, which were thus distributed:—England and British India, 467,000; Russia and Poland, 502,000; Germany incleding Prussia and the Austrian dominions, 439,000; United States of America and the West Indies, 400,000; Italy, 60,000; Belgium, 56,000; Holland 30,000; Sweden and Denmark, 30,000; Switzerland, 30,000; South America, 30,000; Spain and Portugal, 20,000; Turkey, 5,000, France, 620,000.

Sardines.

The editor of the Manchester Mirror says from personal knowledge, that the bay of Monterey, California, is literally filled with this delicious fish. They are said to be found there in greater abundance than in any other part of the world. They are found not only at Monterey, but in all the still waters on the coast from Panama to Oregon.

Alleged Burying Alive.

In the midst of exaggeration and invention, there is one undoubted circumstance which formerly excited the worst apprehensions; the fact that bodies were often found turned in their coffins, and the grave clothes disarranged. But what was ascribed, with seeming reason, to the throes of vitality, is now known to be due to the agency of corruption. A gas is developed in the decayed body which mimics by its mechanical force many of the movements of life. So powerful is this gas in corpses that have lain long in water, that M. Devergie, the physician to the Morgue, at Paris, and the author of a text book on legal medicine, says that unless secured to the table they are often heaved up and thrown to the ground. Frequently strangers, seeing the motion of the limbs, run to the keeper of the Morgue, and announce with horror that the person is alive. All bodies, sooner or later, generate gas in the grave; and it constantly twists about the corpse, blows out the skin till it rends with distention, and sometimes bursts the coffin itself. When the gas explodes with a noise, imagination has converted it into an outcry or groan; the grave has been re-opened; the position of the body has confirmed the suspicion, and the laceration has been taken for evidence that the wretch had gnawed his flesh in the frenzy of despair. So many are the circumstances which will constantly occur to support a conclusion that is more unsubstantial than the fabric of a dream.

Whitney and his Cotton Gin.

The Southern Cultivator, published at Augusta, Ga., contains an interesting letter from Judge Andrews about Whitney's gin. An old gentleman over 80 years of age, named Thomas Talbot, of Washington, Ga., settled there 62 years ago, on the plantation next to that which Whitney settled. Whitney was in partnership with one Durkee, and set up his first cotton gin there. The gin-house was grated so that visitors might see the cotton ginned from the outside. None but females were allowed to enter. A man named Lyon dressed himself in woman's clothes, went in, and discovered the whole *modus operandi* and went home and made a machine. The partner of Whitney became dissipated and Whitney sold out; the old gin and the gin-house were bought by Mr. Talbot, and the old cotton house is now a fine barn. Whitney got his first idea of a cotton gin from a machine used to tear up rags for paper.

Heating and Ventilation Railroad Cars.

The Railroad Journal speaks very favorably of heating and ventilating railroad cars, invented by Henry Ruttan, Esq, of Coburg, Canada, and for which he has a patent for the United States. It is a good system; the principle of its application to buildings, was illustrated in pages 289, and 317, Vol. 6, Scientific American. The Railroad Journal says:

"As artificial warmth is required in this climate about eight months out of the twelve, we look upon any system of ventilation which does not comprise provision for winter ventilation, as the next thing to being altogether worthless, and Mr. Ruttan has hit the nail upon the head in making this part of his plan his chief object. So simple and complete is the arrangement, that in two or three seconds of time the conductor may change from winter to summer ventilation, and from summer to winter."

The introductiou of Alpacas into Australia has been in agitation in England for some years. Lately an effort was made to get some of those animals from Peru, but without success. An inquiry into the adaptation of Australia to the purpose, has also proved discouraging, the climate not being sufficiently cold. It is, however, thought that the mountainous regions in the southeastern part of Australia may be suitable, and it has been urged that the government of Great Britain make the experiment.

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Machinery and Tools as they are.---The Steam Engine.

(Continued from page 67.)

In every dissertation upon machinery, the subject of first importance to be discussed is the Steam Engine and we shall accordingly begin our remarks upon its present condition, with that powerful auxiliary to man. It is not here the place to descant upon the utility of the Steam Engine, nor write the biography of its improver—James Watt—both are alike appreciated—the Mechanic and his work—both have been the theme for the pen of many distinguished writers, and both will go down to posterity in joined remembrance—the Operative and his labor, the Steam Engine and James Watt.

To give a history of the Steam Engine, through its progressive improvement, would be a subject of interest, but would require a greater extent of space than can be here afforded for it, besides, so many books have been written upon the subject that any such account could be only a repetition of what has been already said. We shall, therefore, omit the usual prefatory remarks, and proceed direct to the subject that we propose to treat upon, namely, the Steam Engine in its present state. This, for the better convenience of perspicuity, we shall classify under three heads, viz., Marine, Land, and Locomotive—a division that is generally employed by the best writers upon the subject.

Marine Engines—In adverting to the Marine Engine, we at present more particularly allude to the species of engine employed in sea-going vessels, which differs considerably from those employed on our rivers and lakes, and even along the sea-coast, as in the instance of the steamboats which traverse Long Island Sound. The form of these last-named engines, although well adapted for tranquil waters, would be found unfitted for the stormy ocean.

The description of engine used for sea-going vessels is generally known by the name of the marine condensing engine. For many years the side-lever engine alone was employed for sea, although modern practice has, for some time past, earnestly sought to introduce a more compact shape. It is, indeed, customary for many to speak of the side-lever engine as a thing of the past, and as being entirely superseded by direct-action engines. A little reflection, however, will show that many of our best vessels are still furnished with machinery of the side-lever description, and although we feel strongly the many defects of this variety of engine, it cannot be denied that several of its substitutes have proved still worse. There are, however, other direct-action engines which are decidedly superior, and we trust that the inventive genius of our countrymen will add still further to the number. A few of the best direct-action engines we intend, briefly to describe, but will first glance at the side-lever engine.

Side-Lever Engine—An engine of this form may be thus briefly described:—On a stout bed-plate is fixed the cylinder, behind which are the condenser and air-pump, all three being ranged one after the other in a line with the length of the vessel. On either side of the cylinder is one of the side-levers, which gives the name to this variety of engines. These levers are, in fact, beams not exactly shaped like those in our river steamers, the proportionate depth being much less, and being also formed in one mass; in fact they approach closely in shape to the beam as made by James Watt. It is said that the side-lever engine owes its origin to a rival of Watt, who, irritated by the praises bestowed on the arrangement as planned by his competitor, boasted that he could turn that arrangement upside down, and yet make the engine work. This he seemingly effected by placing the beam at the foot of the cylinder, in which position it is generally called a side-lever. It is certain that this disposition of the beam is most advantageous for insuring the stability of the vessel, and accordingly, for a long period, it was the only mode employed for sea-going vessels, but when the length of the voyage was extended, and it was requisite to render available all possible space, it was then found that the side-levers occupied far more room than could be afforded. To this defect must be added the great weight of the side-levers or sway-beams (which, however, is much less than formerly, as they are now usually made of wrought-iron), the friction on the main centres on which the beams work, and the strain on the foundation plate. We have mentioned the faults of this engine, but it has an advantage over many of its direct-action competitors, in permitting the use of a long connecting-rod, which is of more importance than may at first sight appear. That a vast field is open for improvements in the marine engine, will be evident when we reflect that a first-class locomotive will exert a power equivalent to one thousand horses, and yet will weigh but 35 tons, including the water in the boiler, thus giving 30 horse-power for each ton of its weight. Now, the side-lever engine, with the flue-boiler in use a few years ago, gave only a force of two horse-power for each ton weight of the engine and boiler. The present direct-action engine, with tubular boilers, gives from four to six horse-power for each ton. This is certainly a great improvement, but the instance of the locomotive cited above, points to further progress, at the same time we must remember that the latter is a high-pressure engine, and, consequently, the addition of a condenser, air-pump, hot well, &c., does not increase the aggregate of its weight. The former vessel has remained nearly the same in construction since its first employment, and offers a wide scope for improvement. To condense the steam rapidly and effectually, is the desideratum to be obtained, and which must be done in the smallest space possible. Some attempts have been made to improve the condenser by fixing a number of tubes within it, thus exposing more surface to the effects of the cold water. This system at one time found great favor, but has fallen into disrepute, owing to the exceeding trouble and consequent expense of keeping the tubes in proper order.

(To be Continued.)

Population of New York State.

The population of New York State, according to the census returns of the year 1852, was, in the aggregate, 3,097,358; of which number 2,439,296 were native born, and 658,062 of foreign birth. Of the former 2,151,196 were born in New York State, 26,352 in Pennsylvania, 35,319 in New Jersey, 66,101 in Connecticut, 13,129 in Rhode Island, 55,773 in Massachusetts, 14,519 in New Hampshire, and the remainder in other States. Of the foreign population 343,111 is Irish, 118,398 German, 84,820 English, 23,418 Scotch, 12,515 French 7,582 Welch, and 47,200 British American. More than two-fifths of the foreigners are located in New York and Brooklyn cities.

[For the Scientific American.]

Table of Lumber in Logs.

In Vol. 5, page 307, you have published a table giving the contents of a log in board measure of 12, of 14, and of 16 feet long, from 12 to 48 inches diameter. In the same volume, on page 322, "M. W. B." corrected the table prepared by "M. J. B.," and gives us a rule for only one length of logs, and asserts it to be a true mathematical one—that he has found it correct by sawing many thousand feet of plank. All this is good as far as it goes, but it is of little use in this country, for we have to saw logs for fence posts of 4 feet length, some 4½ feet; in fact, all lengths, to 27 feet. We have prepared the following table which suits us much better; it may be of use to many of its readers. I copy this from one I prepared for the pages of my volume for the use of operatives.

It is the result of the following formulæ:—Multiply the diameter by 3·1416 for the circumference; multiply the diameter by ·7071068 for the side of the square inscribed in the circumference or circle, this product, squared, gives the area contained in the square, which divided by 6 and multiplied by 12, gives the board measure in one foot of the log; multiply this by the length of the log in feet, the result is the boards from the square of the log. The division by 6 is only for the square of the log, for one-fifth of the log is lost in sawing boards one inch thick.

The first column is the diameter of the log in inches; the second column is the girth or circumference in feet and hundredths; the third column is the area of the end of the log in square feet and hundredths; the fourth column is the side of the square it will make in feet and hundredths; the fifth column is the area of the square in square feet and hundredths; the sixth column is the amount of board measure contained in one foot of length of the square, after the saw-dust is deducted.

Diam.	Circumf	Area of the end	Side of square.	Area of square.	Ft. board measure.
One	Two	Three	Four	Five	Six
9	2·34	·63	·52	·27	2·76
10	2·61	·64	·58	·34	3·48
11	2.87	·66	·64	·42	4·20
12	3·14	·78	·69	·45	4·56
13	3·40	·99	·76	·58	5·80
14	3·89	1·03	·83	·68	6.84
15	3·93	1·22	·87	·75	7·54
16	4·18	1·39	·94	·88	8·83
17	4·49	1·58	1·00	1·00	10·00
18	4·71	1·76	1·06	1·12	11·20
19	4·97	1·96	1·11	1·25	12·50
20	5·21	2·17	1·17	1·38	13·80
21	5·49	2·40	1·23	1·51	15·19
22	5·75	2 63	1·29	1·66	16·60
23	6·01	2·87	1·35	1·82	18·22
24	6·28	3·14	1·41	1·98	19·88
25	6·54	3·40	1·47	2·16	21·60
26	6·79	3·76	1·52	2·32	23·20
27	7·06	3·97	1·59	2·52	25·27
28	7·32	4·26	1·65	2·70	27·06
29	7·58	4·07	1·70	2·89	28·90
30	7·85	4·90	1·76	3·09	30·97
31	8·11	5·22	1·82	3·31	33·12
32	8·37	5·57	1·88	3·53	35·34
33	8·63	5·93	1·94	3·76	37·63
34	8·89	6 29	2·00	4·00	40·00
35	9·15	6·67	2·06	4·24	42·39
36	9·42	7·06	2·12	4·59	45·90
37	9·68	7·45	2·18	4·75	47·52
38	9·84	7·85	2·23	4·97	49·80
39	10·21	8·29	2·29	5·28	52·80
40	10·46	8·71	2:35	5·52	55·22
41	10·71	9·14	2·41	5·80	58·08
42	10·99	9·62	2·47	6·10	61·00
43	11·25	10.07	2.53	6·40	64·00
44	11·51	10·54	2·59	6·70	67·08
45	11·78	11·04	2·65	7·02	70·22
46	12·03	11·53	2·71	7·34	73·44
47	12·29	12.03	2.76	7 64	76·45
48	12·56	12·56	2·82	7·95	79·52
49	12·82	13·07	2·88	8·29	82·94
50	12·98	13·49	2 94	8·64	86·43
51	13.35	14·18	3·00	9 00	90·00
52	13·60	14·73	3·06	9·36	93·63
53	13·86	15·31	3·12	9·73	97·34
54	14·13	15·90	3·18	10·11	101·12
55	14·39	16·46	3·24	10·49	104·97
56	14·65	17·08	3·29	10·82	108·24
57	14·92	17·72	3·35	11·22	112·22
58	15·17	18·33	3·41	11·62	116·28
59	15·43	18·64	3·47	12·08	120·82
60	15·70	19·63	3·53	12·46	124.60

To use the above table, multiply the length of the log in feet by the number in the 6th column, on a line with the diameter in the first column, for the quantity of boards the log will make; but when the log is of more diameter than 2 feet, boards may be sawn after the square of the log. To ascertain the thickness of the slab after the square, subtract the number in the 4th column from the diameter in the 1st column, then divide by 2, and the result is the thickness of the slab. To ascertain the whole contents of the log, multiply the number in the 3rd column by the length of the log, it gives the cubic feet contained in the log; this multiply with the weight of the cubic foot in any table, we have the weight of the log.

We have some logs in our yard 3½ feet and upwards, from 9 to 11 feet long; we work only by the table: What number of feet of boards, one inch thick, will be in a log 3 feet 10 inches diameter and 9½ feet long? Column No. 6, on the line with 46 diameter, we have 73·44 × 9·5=697·68+313·5=1011·18 ft. of inch boards. The 313·5 can be sawed out of the slabs, they are ·56 foot thick, as follows:—Column 4, we have 2·71—3·833=1·12÷2=·56, from which three boards can be taken of from 14 to 44 inches wide, which makes the above.

James Sloan.

Sloan's Mills, Floydfork, Shelby Co., Ky.

The New Steamboat Law at the West.

Messrs. Editors—I might write you a long letter about the new Steamboat Law, which has just gone into effect, and which, in one particular, bears pretty heavy upon our high-pressure boats, viz., in the amount or height of steam they are limited to carry; heretofore there has been no limit, and whenever a boat did not wish to be beaten, they would hang extra weight upon the boiler valves. But now that they cannot carry more than 110 lbs. standing weight, or 160 running, it is a very different affair, and I think many of our fastest boats will fall much short of the speed they have made heretofore. I see not how they can help themselves, unless it be by throwing aside their present engines and substituting larger ones, in order to get additional piston surface to make up for the diminished pressure; but then there is a serious objection to that, as the weight of machinery would be too great for the ordinary depth of water in our Western rivers. Many engineers object to the law, but I believe it is mainly because the law objects to them. J. O. Campbell.

Louisville, Ky.

Circular Saws.

Raleigh, N. C., Nov. 8, 1852.

Messrs. Editors—In No. 1, Vol. 8, of the Scientific American, I see it stated (as I have in previous numbers) that in America five horse-power, is allotted for driving a large rip saw, and a larger circular saw. In this statement there must certainly be some mistake, and such an one as will mislead many persons who are unacquainted with larger circular saws, and particularly in this "Piney Woods" country, in buying steam engines for driving circular saws. A circular saw of 52 inches diameter, and running 4,600 feet per minute at the teeth, cannot be driven in yellow pine timber (with the saw its full depth in the log) with less than 12 horse-power, and not less than a fifteen horse-power engine, should be employed to do the work; I have built and put up in this State some of the best steam saw mills in the United States, and I find nothing less than 12 horse-power will give anything like satisfaction; 4,600 feet per minute is considered by our best sawyers, to be full fast enough (with a half inch feed to the revolution) to do good and profitable sawing. Henry G. Bruce.

[When applied to about buying an engine for driving a large circular saw, we have always advised the purchase of a ten horse-power engine. But a nominal five horse-power engine, has been asserted by what was considered good authority—a wholesale manufacturer of machinery—the requisite power. We are much obliged to Mr. Bruce for this definite and practical information.—Ed.

Elevating Water from Rivers for Cities.

A correspondent from St. Pauls, Minnesota, which place is situated on the east bank of the Mississippi about 100 feet above the river, states that the current is very strong there, and he wishes to know what is the best way to obtain a large supply of water by raising it from the river. He enquires if it can be raised by the force of the river operating a spiral current wheel, which might work a pump, or by a hydraulic ram. He tells us that this subject is full of interest to a great many cities and villages situated on river localities.

If the velocity of the current was known, and the nature of the banks of the river above the city for a mile or more known, a better judgement could be formed of what machine was best adapted to supply the place with water. A hydraulic ram, perhaps, would answer very well; a steam engine we know, would positively answer, but it may be too expensive.

Filling Teeth over Exposed Nerves.

Dr. S. P. Hullihen, of Wheeling, Va., has discovered a method whereby the cavities of teeth over exposed nerves may be successfully plugged up. It is this:—The diseased parts of the tooth are removed to make it apparent that the nerve is exposed. The fang is then perforated through the gum, into the nerve cavity. The opening should be of about the size of a small knitting needle; its object is to open the blood vessels of the nerve, which will at once be known by the flow of arterial blood. The cavity of the tooth may then be filled without the least fear of pain or ill consequences. This plan has been successfully practiced in a great number of cases. Hitherto a tooth having an exposed nerve could not be filled and prevent pain and toothache.

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NEW INVENTIONS.

Improved Cotton Press.

Nathan Chapman, of Mystic River, New London Co., Conn., has taken measures to secure a patent for a new and improved press for compressing cotton, &c. This press is intended to supply the desideratum of a quick motion for the follower when the cotton is first compressed. As is evident the cotton yields at first, with comparative facility, to the compressing power, but on the bale becoming more compact, it is necessary to employ a greater intensity of power when a less amount of speed is required. The inventor attains his object by employing spiral cams, or, in other words, conical drums with a spiral groove cast or cut around the periphery. Two of these cams are employed, one on each side of the press, and chains winding round them raise the follower, which slides longitudinally within the box containing the cotton. As the chains are attached to the larger part of the cam or conical drum, it is evident that on beginning to work the press with a regular motion, the chains will have to wind around a larger circumference at first than afterwards, and thus their speed, and consequently that of the follower, will gradually diminish, while, in accordance with the well-known law of mechanics, the intensity of the power will increase in the same ratio. The motion is transmitted through the agency of geared wheels, and the box for the cotton has a cover capable of being removed at pleasure.

Pasteboard Cutter.

George B. Davenport, of North Attleboro, Bristol Co., Mass., has taken measures to secure a patent for improvements in a machine for cutting pasteboard for boxes, It is intended chiefly for the use of paper-box makers, whose work it facilitates, by enabling them to make the slight incisions necessary for the bending of the sides, by the same operation which cuts off the strip of pasteboard from the roll. Adopting the mode of cutting the strips of pasteboard by revolving cutters, the patentee has improved the machine by fixing on the shaft carrying the upper cutter, a pair of adjustable circular markers or incisors. By fixing these at any desired width, which is done by set screws, it is evident that, on setting the machine to work whilst the strip of pasteboard is being cut in the ordinary manner, the two markers will partially cut the material so as to allow it to form the sides, thus dispensing with the necessity of two separate operations. Should the box be of a square form, one adjustment only is necessary for the slide gauge, but if the shape is oblong it must be fixed twice. The second improvement in this machine has for its aim the cutting of circular pieces of pasteboard for the covers and bottoms of cylindrical boxes. This is effected by having a bar sliding in a groove on the bed-plate; in this bar is fixed a plate capable of moving to-and-fro, so as to approach or recede from the cutters. A small point is fixed in the plate, to serve as a centre on which to turn the pasteboard; this is done by the operator with one hand whilst working the cutters with the other. The machine is likewise adapted for making lozenge-shaped and other varieties of boxes.

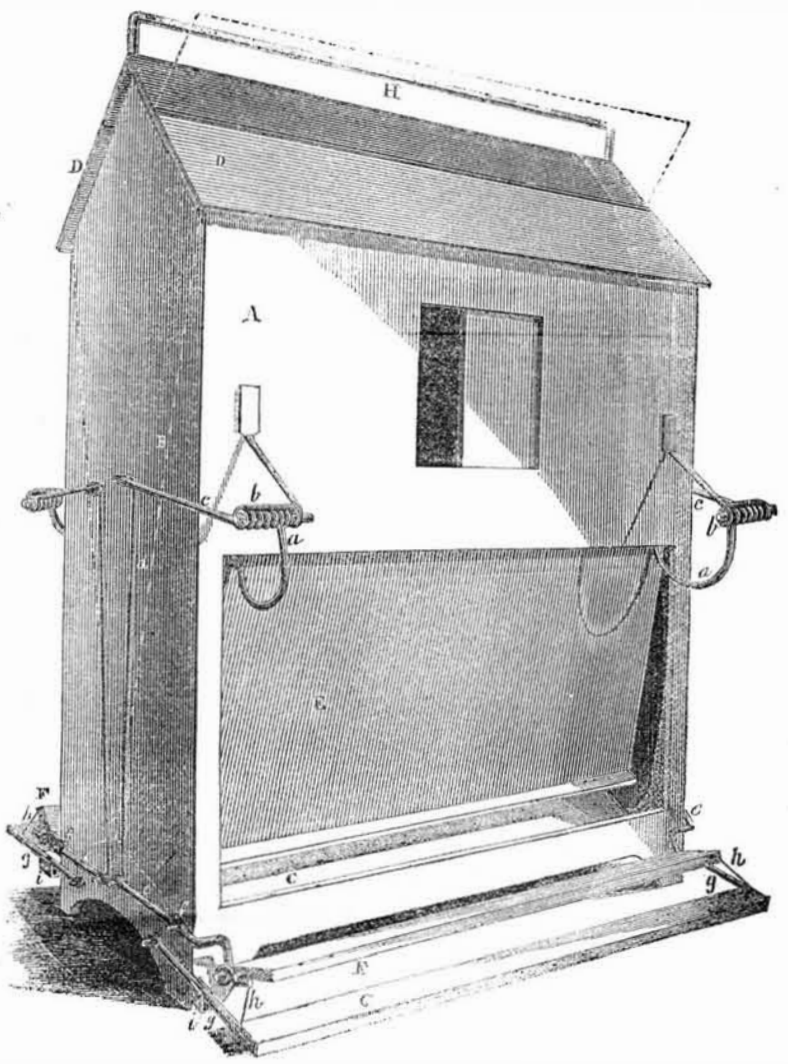
Screw Cutting Machinery.

Andrew Mayer, of Philadelphia, has taken measures to secure a patent for improvements in the apparatus for cutting screws on pipes and other articles. The screwing apparatus which this patent is intended to improve, is much used by gas fitters and others to screw piping. The gas pipes are generally more or less bent, whence results considerable damage to the dies during the process of screwing; for, owing to their fixed position, they cannot accommodate themselves to the inequalities of the pipe, the threads in the screw of the latter also being liable to be broken. To obviate this defect, the patentee forms, in the stock which holds the dies, recesses for these latter, sufficiently large to allow them to move or play slightly in a direction transversely or laterally to the axis of the pipe. By this means the dies yield before any irregularities in the pipe, and thus prevent any jamming, which would increase the labor of the operative, and tend to prevent the screw from being truly cut.

ALBEE'S FOWL FEEDER.

The annexed engraving is a perspective view of an apparatus for feeding fowls, invented by Simeon Willard Albee, of Bellows' Falls, Vt., for which a patent was granted on the 9th of last September.

A is a case or box of suitable size and shape, and contains a hopper, B, seen in dotted lines. (Both sides of this apparatus are alike); C is a feed box, this feed box is placed under the hopper; D is a lid to allow the grain to be poured into the hopper; H is a bar for the said lid to recline against, &c.; E is a door of the case. It is attached by curved arms, *a a*, to hinges, *b b*, which are attached to arms, *c c*, and these to the rods, *d'* as shown at the left side. These rods, *d'*, at each side, are attached to bent levers, *e*, having their fulcrums at *f*, and those levers are secured to the step. It will therefore be observed that as the step, F, is raised or lowered, the door, E, will open or close, because when the inner ends of the levers, *e e*, are raised upwards by the fowls jumping on the steps, the inner ends of the curved arms, *a*, which are attached to the hinges, *b*, will be raised upward, and as the door, E, at the

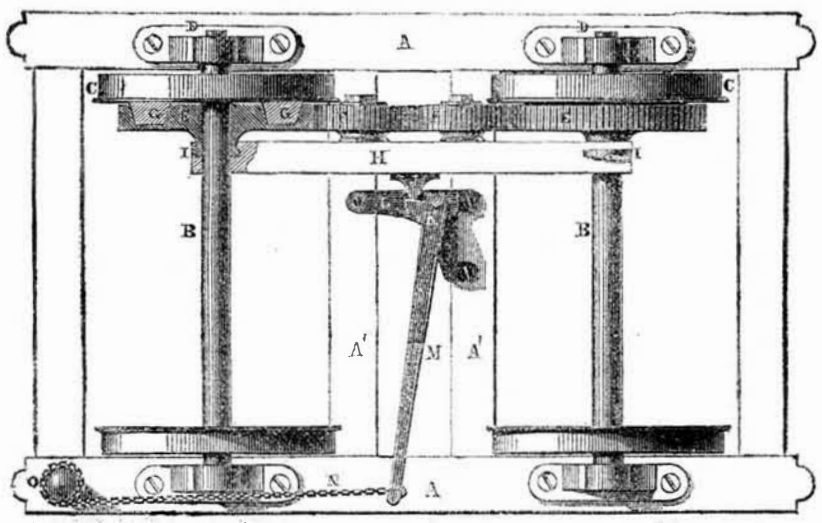


top is attached to the inner ends of arms, *a*, the lower edge of the door, E, will swing inwards as shown in the figure, and the feed box, C, will be exposed. Two steps are represented, the lower one being secured on a lever, *g*, (one on each side) which hangs on a fulcrum, *i*, and is connected by cords, *h h*, to the step, F, so as to act upon it. By the fowls alighting on the steps, the door, E, is thus opened by their weight, and when they leap off, the door is heavy enough to swing into its perpendicular position, and cover in the feed box from exposure. The fowls cannot be entrapped in the feed box, as the door, when swinging out, will force any that may jump into the box out of it. The levers, *g g*, by their joints, *i i*, (one not seen) allow of the lower step being lifted up, against the case, and thus prevent the fowls (when desired) from opening the door, E.

This apparatus preserves the grain from filth, vermin, and exposure to the weather, it also prevents the fowls from wasting it, they can feed themselves at pleasure, and also be prevented from doing so, as mentioned. The case can be carried about conveniently, and different kinds of grain used, by having the hopper and boxes divided into partitions.

More information may be obtained by letter addressed to the patentee.

HOLLY'S RAILROAD CAR BRAKE.



This engraving is a plan view of a new Brake for Railroad Cars, invented by Birdsill Holly, of Seneca Falls, N. Y., and for which a patent was granted on the 10th of last February. The nature of this invention consists in applying side clutch wheels to running wheels of the car, to arrest their motion by friction, and giving one a contrary motion to the other, thus to counteract and nullify the forward motion of the running wheels.

The figure shows a truck-frame, A A A' A'; on the cross-braces is secured a fulcrum plate, L, for the fulcrum pin, K, of the lever, M, which lever is operated by the brakesman with a vertical shaft, O, which winds up the chain, N, and pushes in a swinging clutch frame, H, by the bottom of the lever, at K, acting on the projection, J, which is at the bottom of the frame, H.

This plan view of the truck does not show how the frame, H, is hung on centres, and how the wheels, E E, are made to clutch by buttons, I I, of frame H, pressing on their hubs, but we will try and explain how this is done:—D D are the axle boxes of the running wheels, C C. These two wheels are made with conical wooden projections, G G (section of one wheel), secured to the inside flanges of the wheels. The wheels, E E, are secured on the axles of wheels, C C, but are allowed to slide on the same. The said wheels are made with conical openings to receive the conical projections, G G, on the running wheels; and these wheels, E E, operate exactly like a common clutch to gear two pinions, F F, so that there is a continuous gear of the two wheels, E E, and pinions, F F. The wheels are now represented to be geared together, the front one in section shown to be clutched with C. It will be evident that when these wheels are out of gear, by winding the chain on the spindle, O, the lever will act as represented, by pushing in the swinging frame, H, and pressing up the hubs of wheels E E, by the buttons, I I, to make them slide in on their axles, and the openings clutch the conical projections, G G, which will thus gear the front and back running wheels, C C, and act to make the one revolve in a contrary direction to the other; this action nullifies the motion of the car wheels, and arrests the progress of the car.

By relieving the lever, M, which is done by slacking up the chain, N, the swinging frame, H, will swing back and hang perpendicular; the first motion of the running wheels, C C, then pushes the wheels, E E, sideways, and makes them slide a small distance along their axle, and thus they are self-ungeared, and the running wheels left free to move forward again.

This brake is certainly a peculiar one, and is constructed upon a principle entirely different from any other we have examined. The sliding wheels or rubbers, E E, act both as side friction brakes and as clutch wheels, to set a train of gear in operation, and make the motion of one running wheel nullify the motion of the other.

More information may be obtained by letter addressed to Silsby, Race & Holly, Seneca Falls, N. Y.

New Cotton Press.

J. B. Armstrong, of Whitepond, Barnwell Dist., S. C., has taken measures to secure a patent for an improved cotton press. This machine, which is a screw press, is designed to be worked by steam or other power. A stout rod, having a screw cut in it, is attached by one end to the follower, whilst the other, being the screwed part, works in a nut firmly attached to a bevel wheel, which latter gears into a pinion. Belts and pulleys are employed to transmit the power, though geared wheels, &c., may be used. The inventor has obviated the necessity of reversing the motion of the driving belt, when the motion of the follower is to be changed from upward to downward, by using two belts, one crossed and the other straight, for transmitting the motion from the driving shaft to the pinion. By using, alternately, one or the other of these belts, an upward or downward motion of the screw and follower is obtained. The diameter of the pulleys are regulated so as to give a slow powerful motion when the follower is forced down upon the cotton, but a rapid speed is imparted when the follower is to be raised

Iron Masts in a Gale.

The British ship Typhoon, iron built, from Glasgow, bound to Australia, with 224 emigrants, put into Lisbon, Portugal, on the 6th ult., to repair damages, having lost her bowsprit and foremast, and her main and mizen topmasts.

This ship is iron masted, and it is said the gale was not such but that wooden masts would have stood it out easily.

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Scientific American

NEW-YORK, NOVEMBER 20, 1852.

Reform of the Patent Laws.

As Congress will soon assemble again, we conceive it to be our duty at this time, to direct the attention of our people to the reform of our patent laws. Our attention has also been specially called to this subject by the "Model Courier," Philadelphia, which speaks of the present laws as affording every means for the patent pirate to use a patented invention and contest the right of the patentee to the same, by money gained from the very machine of which he has robbed the inventor.

It is well known to our readers that a bill for reforming the Patent Laws passed the Senate during the past winter, and was sent down to the House of Representatives, and that it was afterwards recalled by nearly a unanimous vote, because a most glaring and iniquitous clause legalizing the actions of the Chief Clerk had been introduced into it, if not surreptitiously, at least it almost amounted to that.

Congress adjourned, although the session was a very long one, without passing the bill, and we are glad that it did so, for it will allow of a closer scrutiny being given to all the clauses of it, and the addition of new ones that may be required.

One great evil which should be remedied is the expensive and tedious mode of bringing cases to a conclusion in our United States Courts. No poor inventor can contest his patent with a wealthy infringer. We would recommend that a clause be introduced, making it the duty of government which grants a patent, to prosecute through the U. S. District Attorneys those who infringe patents; and that in every district where a jury trial is prayed for by the defendant, whoever he may be, that it at once be granted. This will bring the case to a focus very soon, and prevent such india rubber extension cases, as was exhibited in the famous dilatory, wandering, and singular india rubber case of Goodyear versus Day. We want to see the old tedious and expensive modes of obtaining justice in our courts of law simplified, and made common-sense-like and economical. We beat all creation in going ahead with machine inventions, but we certainly are in great want of an invention to render prompt justice in cases of patent infringement, for assuredly while we travel by steam and talk with lightning, our U. S. Courts, with whom the settlement of patent cases is left for adjudication, are content to move along slowly and grand in the old-fashioned mule-drawn carriages of *checks*, *delays*, *put-offs*, *embarrassments*, and *weighty purses*.

We also advocate prompt justice to a defendant; let all stand equal before the scales of justice. He should have the right to sue out a writ of *scire facias* to repeal a fraudulent patent, but then all patent cases should be acted upon promptly, so as to cause as little expense to both parties as possible.

There are two reforms which are imperatively demanded in our patent laws, that are not embraced in the bill left over by the last Congress. One is to return the model, as well as two-thirds of the fees of an applicant who withdraws his claims; the other is to afford an easy means to appeal from the decision of the Patent Office, and a return of the fees to the applicant if he is successful.

By the present law and regulations of the Patent Office, no rejected applicant gets back his model; it is retained in the Patent Office, and although it may have cost $200, the applicant loses it, or the whole of his fees. Ten dollars is enough to pay all the expenses of a rejected applicant, and if his model is similar to an older one in the Patent Office, what in the name of common sense is the use of retaining it? to the applicant it may be of practical use; to the aPtent Office none whatever.

When the application for a patent is rejected, the applicant can appeal from the decision of the Commissioner to the District Judge of the District of Columbia, or to his assistants, but he "must first deposit $25, and pay the whole of the expenses, whether the final decision shall be in his favor or not." In all common courts of law, the person who stands in the way of justice—the one who loses the case, pays the expenses, but it is altogether a different kind of justice which rules between inventors and the Patent Office. We want an alteration in the law which will throw the expense upon the Patent Office if it loses the case, and upon the applicant if he loses the case; this we consider even-handed justice. We hope that the committees of patents in the Senate and House of Representatives will give these suggestions their attention. Above all evils, however, connected with our patent laws, the expensive modes of obtaining decisions in our U. S. District Courts are the mill stones which hang around the necks of inventors.

Manufacture of Iron.

It has always appeared to us, that in many parts of our country the rich beds of iron, coal, and lime, lying so near to one another, afforded advantages for the manufacture of iron of as good a quality, and at as little cost, as it can be made in any country in the world. One of the most extensive iron makers of Great Britain, while on a visit to this country a few years ago, made it a special part of his business to travel extensively and examine the different iron works in several States. The conclusion at which he arrived was, that we were perfectly blind to our own interests in the mode of conducting the making of iron, and that it could be made as cheap, if not cheaper, in various places in America than in England, if the business was well managed.

It is not for us to point out where the defect lies, because it is so easy to lose money in the manufacture of iron, from bad management, that one maker in the same district in England will be making good dividends, while his nearest neighbor in the same field will be losing money. Our object is principally to bring to public notice a very great improvement which has been made in the manufacture of iron by Joseph Dixon, Esq., of Jersey City. A specimen of plate iron made by the new process has been left at our office for inspection by E. L. Norfolk. This plate is perfectly free from flaws, and all those imperfections of unequal texture, which belong to all the plate wrought iron we have examined. We understand that the process is but little more expensive (if any), than the present modes of making plate iron, and yet so beautiful and uniform in texture is the surface, that it will make a splended plate for the engraver's art.

For boiler iron especially, this improvement appears to be a grand remedy for defective plates, by which so many accidents have been caused, two of which with sad results, have taken place near this city during the present year. In the interior of boiler plates there are often times blisters, which sooner or later lead to an accident, if not noticed in season to prevent the same. We understand that no blister nor flaw can possibly exist in plates manufactured by the new process.—They are therefore much stronger than the common ones, for no boiler is stronger than the weakest part of it.

Iron is perhaps the most sensitive of all metals; it is affected for good or evil, in its manufacture, by very minute impurities and inattention. It is our opinion that the iron manufacture is far, very far, from having attained to anything like perfection. We hope that as many of our people who have time, opportunity and means, will devote part of their attention to experiments for improving its manufacture both as it respects quality and the reduction of cost.

Interesting Patent Case---Colt's Pistols.

Samuel Colt, against Young & Leavit.

This case has occupied much of the public attention, inasmuch as the speeches of counsel were published in some of our daily papers. The plaintiff was Samuel Colt, the well-know inventor of the fire-arms which bear his name, and the defendants were a well-known firm in this city. The plaintiff prayed for an injunction to restrain the defendants from infringing his patent. The case has been before the court in this city more than a single term. The presiding Judge Nelson reserved his decision until the 10th inst., when he gave it against the defendants and ordered an injunction.

The defence set up was, that the invention claimed in the patent was not new, the main point of which is that the breech is revolved by drawing the trigger. This combination of the revolving breech with the lock, Judge Nelson considered to have been fully substantiated as belonging to Colt—his invention.

Colt's patent was extended for 7 years in 1849, and has therefore four years to run before it expires. Col. Colt himself is now in England with a number of American mechanics, to establish the manufacture of his fire-arms there, at the solicitations of the British government.

Materials for Building Houses.

We have received communications relative to building houses—the most economical materials to employ, &c. There is a natural law which comes into operation in man at a certain age; that law is self-reliance. It is this law which prompts all men to love their own fire-sides best, and which causes grief and many unpleasant forebodings, when the heart is not satisfied because it hath no ingle side it can call its own, round which loved and happy faces sit and sing and call it "home."

A man is relieved of many cares when he has a free home and fire-side of his own. It would add greatly to the happiness of every honest and industrious man if he was lord of his own house—the baron of his own cottage. In and around our cities this is possible to a very limited number of our workers. The causes which operate against this are the high price of building lots and materials for building with. Timber is becoming dearer every year, and will continue to do so. Bricks are high in price, so is iron and stone. Is there no other building material which is cheaper and which will answer a good purpose? There is; Mr. Fowler, of the firm of Fowlers & Wells, of this city, with his real practical mind, has built a house near Fishkill, on the Hudson River, the walls of which are made of prepared gravel. The cheapness of the material, the unique character and comforts of the building have engaged much attention. Walls 256 feet in circumference, and 11 feet 4 inches high, cost seventy-nine dollars to put up, and this amounts to as many feet as are embraced in a house 45 feet long, 25 feet wide, and 21 feet high—two stories and a-half. The materials of which the walls are made are compounded of 8 bushels of slacked lime, sixteen bushels of sand, and about sixty bushels of fine and coarse gravel. This is thoroughly mixed up together in a bed to a proper consistency, and laid up in walls with standard guide boards, braces, &c., to lay the wall solid and straight. This wall has stood summer heats and winter frosts well. It is plastered inside and out, and is both comfortable and solid. The inside walls are made of studs lathed and plastered, but we only refer to the outside wall as being made of a cheap material, which is asserted to stand the weather perfectly, and is getting harder and better every day. Messrs. Fowlers & Wells have published a small book entitled "A Home for All," which contains diagrams and a full description of the whole method of building such a house. We have a strong predilection for brown freestone as a building material, but it is far too dear for common houses. Many improvements in brick machines have been made within a few years, but the price of bricks is still high. Some buildings are now being erected in this city of drab colored bricks, but we like the red kind better.—Every improvement which is made to cheapen the materials for building houses adds greatly to the comfort and happiness of the people, because many are thereby enabled to secure homes for themselves, which otherwise they would not be able to do.

New Invention for Steamships.

Wm. W. Hubbell attorney and counsellor at law, Philadelphia, informs us that he has perfected an invention for a new method of propelling steamships, which he states is more efficient and constant in its propulsive principle than side wheels or propeller screws. He has shown it and discussed its merits with some able marine engineers, who have agreed that for war steamers it will surpass anything now on the ocean for speed, constancy of action and invincibility. The rudder and every mast may be shot away, yet the ship will not be deprived of its speed or management. He intends to take out patents in foreign countries as well as for home. The improvements may be expected to be fully illustrated and described in our columns when the inventor returns from the south (where he has gone on business), during some part of next month.

To Competitors for the Prizes.

Our subscribers will bear in mind that the time is fast approaching when the valuable prizes offered by us, for the four largest lists of mail subscribers, will have to be awarded. They are as follows:—A Silver Pitcher, worth $60; a set of the Iconographic Encyclopedia, worth $35; Dempsey's Machinery of the Nineteenth Century, and C. B. Stuart's great work upon the Naval Dry Docks of the United States. The winner of the first prize can receive the Silver Pitcher or $60—we are not particular which is chosen. Several lists have been forwarded to us, and we therefore advise those of our friends who are really in earnest, to be expeditious. We should be sorry to find some hard-working zealous subscriber losing his chance merely from not sending us in his list of subscribers early enough; we therefore hope sincerely, that no such disagreeable inadvertency will occur—but occur it must if there be any procrastinating, for the prizes will be decidedly awarded at the fixed time. After this notice no blame can be attached to us. If any of our friends allows the occasion to pass by it will be his own fault—he will have no one to blame but himself. Never mind waiting to get a few more subscribers—send up your lists with what names you have already got, and do not lose your chance.

Our Canada and Nova Scotia friends are reminded that they are free to compete likewise for the valuable prizes above specified. In the case, however, of subscribers out of the States, fifty cents additional to the published rates of each yearly subscriber must be sent as we are obliged to pre-pay that amount of postage. We hope that they will not be behind-hand in competing.

Changes in the Patent Office.

During the present year many changes have taken place in the Patent Office. Never since it was instituted have so many rumors been circulated about doings in and connected with this department of the government. Three Chief-Examiners have resigned within four months, and the Commissioner of Patents—Mr. Ewbank—within two weeks. The Examiners who resigned were Dr. Page, Mr. Fitzgerald, and Mr. Cooper. The former two were the oldest Chief-Examiners in the office, and Mr. Cooper as Assistant and Chief-Examiner had been in the office ten years. The classes of inventions relating to electrical apparatus, weaving, spinning, hydraulics, and civil engineering, have now new Chief-Examiners.

It is the first instance, we believe, in the history of the Patent Office, that a Commissioner has resigned. Since the inauguration of General Taylor, the changes of government officers have been exceedingly numerous. With the causes of Mr. Ewbank's resignation we are not specifically informed; we could present some of the rumored causes which led to it, but this would not be right. S. H. Hodge, Esq, is now Commissioner of Patents, and all our readers who have personal business to transact with the Patent Office, should address their communications to him as Commissioner of Patents.

A Large and Small Wheel.

We expect that some of our Pennsylvania friends in Muncy, (and none others) will answer the article in last week's Scientific American, and tell how much the small wheel slides. Let the answer be short; a few lines will do it; and those who see through it will no doubt be able to point out an *error* of an important but single short word, in the article to which we refer.

Foreign Patents.

We would again remind our readers that we are transacting a very large Patent Agency business in all foreign countries. On the first of October, the day on which the Patent Law Amendment Act went into operation, provisional protection was extended to a number of cases in which we are acting agents."

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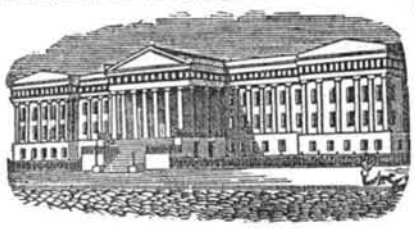

Reported Officially for the Scientific American

LIST OF PATENT CLAIMS

Issued from the United States Patent Office.

FOR THE WEEK ENDING NOVEMBER 9, 1852.

OIL PRESSES—By Wm. P. Chadwick, of Edgarton, Mass: I claim the arrangement of the screw within the body or interior of the box, in combination with and so applying it to one head of the box, and to the platen, that, by its revolution in one direction, the platen will be drawn towards the said end of the box, all substantially as specified, not meaning to claim the combination of a screw, platen, and box, but intending to limit my claim as described.

PRINTING PRESSES—By Joel Densmore, of Blooming Valley, Pa.: I claim the combination of the fingers or grippers for seizing the sheets and holding them to the cylinder, and the fingers for throwing the sheets off from the cylinder, said fingers or grippers being attached to shafts arranged longitudinally to the cylinder, and attached thereto, and being turned to give the necessary movements to the fingers, by the revolution or vibration of the cylinder, through the agency of cranks and rods, or their equivalents.

MARINE SIGNALS—By T. H. Dodge, of Nashua, N. H.: I claim placing the lamp on a movable pedestal or its equivalent, inside the many sided signal box, and raising and lowering the same from one colored glass to another, by means of the cord and pulley, or their equivalents, the whole being constructed, arranged, and operating in connection with a signal, in the manner and for the purposes, substantially as described.

TURNING JAW VISES—By Abijah Hulbert, of Augusta, Ga.: I am aware that the revolving jaw of a vise has been set, and then secured to any desired angle with the fixed jaw, and I do not claim the so doing. But I claim constructing the jaw of a revolving vise, with a flange or projection provided on the edge thereof, with a left-handed screw, in which meshes a screw, or other equivalent, operating on said jaw, in the manner set forth, by which I am enabled both to set and secure the revolving jaw at the same time.

SADDLES—By Thos. Mardock, of Cincinnati, Ohio: I claim the construction of a saddle with seat attached to the pommel and cantle, by lips, as described, or in any equivalent manner, so as to be easily removable for the inspection, and, if need be, alteration of any part of the saddle.

THROWING SHUTTLES IN LOOMS—By S. C. Mendenhall, of Richmond, Ind.: I claim the combination and arrangement of the spring tuggers, cords, and treadles, &c., so that the depression of any one of these treadles shall release the triggers on the forward movement of the lay, and allow the picker staff to actuate the shuttle substantially as set forth.

IMPROVEMENT IN HAND LOOMS—By S. C. Mendenhall, of Richmond, Ind., & Obed and Ezra King, of Salem, Iowa: We claim the combination of a nerve, operated by lay, inclined plane, and its guides and adjustable pin, or their equivalents, combined and operating as described, so that we can operate and vary the number of heddles, substantially as set forth.

We are aware that the picker staff has been operated by hooks, alternately raised from the shoulders on the picker staff, by pins on a vibrating slide operated by grooves in the treadle cam: this we do not claim. But we claim the combination of the inclined plane on picker staff spring and hooks, for the purpose of sliding the hooks, in the manner specified.

STEERING SUBMARINE VESSELS—By L. D. Phillips, of Michigan City, Ind.: I claim the arrangement of the shaft of the propeller, so as to pass through and be guided by the tiller, or the equivalent thereof, mounted on a universal joint, in order that the propeller may be driven by one hand, while the vessel is steered in any direction by the other, substantially as set forth.

I also claim the combination of a universal rudder, with a series of keels arranged on the top, bottom, and sides, of the vessel, to aid in steadying her, and to facilitate the steering of her in various directions, by means of an universal rudder, substantially as set forth.

HORSE SHOE MACHINERY—By Solomon Shetter, of Alleghany, Pa.: I claim the arrangement of shifting dies and adjustable levers and cams, substantially as set forth.

TWISTING TUBES FOR ROVING—By Harvey Silver, of Lowell, Mass.: I claim, first, the construction and use, of tubes for giving counter twist to roving, by having a slot in the side, in such a manner that the roving can be laid into the tube, without the use of a hook, as described.

Second, the construction, arrangement, and use of tubes, for giving countertwist to roving, in such a manner that without disengaging the driving apparatus, the tube can be so turned on its support, that a hook can be passed between the bosses of the rolls through the revolving tube, to draw the roving into the tube, without stopping the parts, as described.

Third, the construction and use of tubes for giving countertwist to roving, by making them in two parts, into one of which the roving can be adjusted and then dropped into the other, giving it the necessary rotary motion to form the twist.

MACHINERY FOR CRIMPING METAL BARS—By Giles Slocum & M. T. Sayles, of Lansingburgh, N.Y.: We do not claim the flexible die, nor the combination of the permanent and flexible dies, as they have been previously used; but we claim the peculiar manner of operating said dies, as described, viz., by means of pressure rollers, being fixed permanently in the frame, and the upper rollers arranged so as to yield to the die, when necessary; the movable bed being attached by a cord or chain to a roller, by turning which the bed is drawn between the upper rollers and the lower rollers, the upper roller forcing or compressing the flexible die upon the permanent die, and bending or crimping the bar, as set forth.

COOKING RANGE—By G. S. G. Spencer, of Boston, Mass.: I claim the combination of a heat radiating chamber, applied to the rear end, and two draft flues applied to each of the four faces at top, bottom, and two sides of an elevated oven of a cooking range; said combination of flues causing the smoke and other volatile products of combustion to pass from the back of the flue space under the boiling chamber into a flue leading under the rear part of the oven, and transversely across or from side to side of the oven, thence up a flue leading against such side of the oven, thence down a flue leading against such side of the oven, thence into a reservoir flue leading transversely across, and under and against the bottom of the oven, thence upwards into a flue leading horizontally and along the other side of the oven, and from front to rear of it; thence into and through a flue leading horizontally against such second or other side of the oven, thence into a flue leading across the top of the oven, and from side to side of it, thence into and through another flue leading over and against the said top, and in an opposite direction to the last-mentioned, and thence into the chimney or discharge flue.

BRICK MACHINES—By Henry H. Strawbridge, of New Orleans, La., and Daniel Tyson, of Covington, La: We claim the roller, in combination with a reciprocating series of moulds, for the purpose of gauging the quantity of clay to be compressed into the said moulds, the several parts being arranged and operating as described.

We also claim the method of finishing the surface of dry clay bricks in moulds, by first shaving off the surplus material, and then smoothing the shaved surface, by rubbing it under heavy pressure, while confined in the moulds, to prevent it from breaking under the operation, as it would do if not so confined.

AUTOMATIC FANS—By Seth E. Winslow, of Kensington, Pa.: I claim the mode of operating the fan, by means of the rod impinging upon the floor, and made to re-act by means of a spring, substantially as set forth.

GAS BURNERS—By A. H. Wood, of Boston, Mass.: I claim the use, in a gas burner, of a distributor, constructed for the purpose of producing a steady jet or flame, and for preventing the blowing and waste of gas in the burner.

RECIPROCATING DIE SPIKE MACHINERY—By M. Belknap (assignor to M. Belknap & Lyman Kinsley), of Canton, Mass.: I do not claim a series of two or more griping or holding dies made to rotate around one common axis or shaft; nor do I claim reciprocating dies, each provided with its own griping die; but I claim combining the two reciprocating bed dies (affixed to a carriage having a horizontal movement, as stated) with the griping lever, as the upper die for both, so as to operate therewith, substantially as described.

DESIGNS.

PARLOR STOVE—By Washburn Race (assignor to H. C. Silsby, W. Race & Birdsill Holly), of Seneca Falls, N. Y.

PEDESTAL AND COLUMN—By Thos. Law (assignor to Levi Chapman), of New York City.

PARLOR STOVE—By S. H. Sailor (assignor to J. G. Abbott & Archiles Lawrence), of Philadelphia.

CANNON STOVE—By S. H. Sailor (assignor to Jas. G. Abbott & A. Lawrence), of Philadelphia.

STOVE—By S. H. Sailor (assignor to J. G. Abbott & A. Lawrence), of Philadelphia.

STOVE PLATES—By S. H. Sailor (assignor to J. G. Abbott & A. Lawrence), of Philadelphia

Recent Foreign Inventions.

PAINTING.—Wm. Fregoot of Manchester, Eng., patentee. To produce a plain, white, polished surface, the patentee takes carbonate of lead or zinc white, which he grinds up with turpentine and partially dries, and then mixes with copal varnish. This compound is then laid on the surface to be covered until the requisite number of coatings have been given; in each successive coating the varnish should be increased. When dry, the surface is rubbed smooth with pumice dust or rotten stone.

For coachmakers' work much time will be saved by mixing the different colors required (ground up with the turpentine) with the white body varnish above described, a fewer number of coatings will be required than when the varnish is laid on over paint, as is now the case.

Ornamental devices, such as scrolls, flowers, &c., may be produced on polished surfaces obtained as above, by cutting out the ornament paper and pinning it on the surface, and then stippling over the whole with any suitable paint by which a dead ground can be produced. When the stippling is dry and the paper removed, the ornament will be left in high and bright relief. Another method consists in painting the ornament with a solution of sugar starch, gelatine, or gum, then stippling over the whole surface, and when dry washing with water, by which that portion of the stippling by which the ornament is covered will be removed, together with the gum, starch, or sugar used in stippling it out, and the ornament will be left in bright relief.

STEEL.—Wm. W. Collins, London, patentee.—The puddling furnace is to be charged with 4 cwt. of grey pig iron and a large proportionate quantity of silicate of iron or other metallic oxide. The first stage of the boiling in furnace is conducted as usual, except that the mass is not raked nor stirred. After the boiling has continued 30 minutes, the mass will exhibit a tendency to rise, and the puddler must then begin to work vigorously until the iron is ready for the balling and putting through the squeezers. The product of the above is a fine, close-grained iron, which possesses the property of combining readily with carbon.

To convert the finished bar into steel they are placed into crucibles without previous cementation, together with pounded charcoal, and melted therewith.

TURKEY RED COLOR.—John Mercer and John Greenwood, patentees.—This patent is simply for wetting pieces of cotton by a padding machine before it is passed through the oil solution. We believe there are no Turkey reds dyed in the United States, but the time will come when this beautiful color will be dyed here as well as it is in England or Switzerland. It will interest some of our readers who are practical chemists in our calico printworks, to know that the patentees run their cloth through the olive oil bath, heated to near the boiling point, then press it between rollers and dry in a store-room at 180° Fah., after which it is next passed through an alkaline solution of pearl ash and soda, then washed, dried, and is prepared for the sumac or galls, prior to getting the alum, which is the mordant preparatory to dyeing in the madder bath.

The Caloric Steamship.

The "New York Daily Times" of last Friday contains an article on the caloric steamship, and states that it will soon be ready for trial. It is only intended, it seems, for carrying freight, and is not expected to make the passage in less than 14 or 15 days, between New York and Liverpool. Well, after all, we are not to have a fair trial of superiority, so as to enable us to judge of its economy in running with the regular mail steamers. It is asserted that it will use less fuel, and be far more economical than a steamship. It must be understood that it uses heated air in place of steam as a propelling force. We have seen articles in the "Merchants' Magazine," and in many other papers, holding forth the great advantages and economy in employing heated air as a substitute for steam, but we have not read a solitary statement how this was to be done upon philosophical principles. Some have got the idea from the name of an apparatus connected with the air engine, named a "regenerator," that no heat will be lost, that the same heated air will be used by some *hocus pocus* process over and over again to drive the engine without extra combustion. It is just about as scientific thus to talk of using heated air as to expect water to run down hill to drive one water wheel, and then up another to leap down a second fall to drive a second wheel. Steam is more economical than heated air, but great improvements have yet to be made in the construction of furnaces of boilers and the economizing of the heat to prevent so much of it passing away up the smoke pipe.

The Beardslee Planing Machine Case.

The Planing Machine controversy, which has been so long pending between Wilson and Gibson, complainants, and George W. Beardslee, defendant, and in relation to which a mass of testimony (some 400 printed pages) has been taken, before a United States Judge, has finally been adjusted, the testimony adduced by the defendants being so conclusive that the application for an injunction to restrain the use of Beardslee's machines has been abandoned. Mr. Wilson has also stipulated and agreed to let Beardslee's machines run forever unmolested.

Patents in England.

No less than 146 patents were entered on the 1st day of last month (October,) under the provisional protection of the new English Patent Law. The London Mechanics' Magazine says, our patent fees should be reduced for foreigners to the same as for our own citizens. Our fees to foreigners are no higher than those they pay in their own countries. We are not prepared to advocate a reduction of those fees at present.

Illustrated Newspaper.

P. T. Barnum and H. D. Beach have associated themselves together with a cash capital of $40,000 for the purpose of publishing an illustrated newspaper. The well-known energy of Barnum, added to the experience of Mr. Beach will, we have no doubt, bring forth the most magnificent pictorial ever attempted in this country. The paper is to commence about the first of January. We wonder where Barnum will turn up next.

Suspension Bridges.

The subject of oscillations in chains suspended at two points, has recently been discussed in a paper by J. H. Rohrs, published in the Philosophical Magazine. The object is to explain the causes of fracture in suspension bridges arising from the tramping of troops, gusts of wind, etc. The following are the principal conclusions arrived at:—

1st. That if the tension at the ends of the chain where it is suspended be kept constant by allowing play at those points, the variation of tension due to vibration at any other point of the chain will be but small.

2nd. That it the chain be tied at the points of suspension so that it can have no motion there, a slight extent of vibration will produce comparatively a great increase of tension.

3d. That periodic forces, such as may be taken, for instance, to represent the effect of tramping in time of troops moving across the bridge, are dangerous in the extreme, as if they happen to coincide in period with any of the possible types of vibration, the extent of vibration will increase continuously, till it ceases to be represented approximately by a linear or even an equation of the second order; in this case, the chain will be divided by nodal points where there is no vertical motion.

4th. That the mere transit without tramping, of ordinary loads at an ordinary pace would not cause sensible vibration in a bridge of wide span; but that terms not periodic might be introduced by the variable pressure of wind sweeping in rapid gusts along the platform.

The Cotton Crop.

The Savannah Courier of the 27th inst., says:—"During the recent Agricultural Fair in Macon, we conversed with hundreds of planters in regard to the prospects and probable extent of the cotton crop. Their opinions varied according to locality, and the influence of seasons and storms. In sections the yield will unquestionably be short, while in others it will be nearly double that of last year. One planter from Putnam, for instance informed us that he last year made 70 bales. This year he has already saved 120 bales, and has a prospect of 50 bales more. He stated however, that his was an extraordinary crop, and that his neighbors were not doing so well. Nearly every man we spoke with expected to do as well as last year, while three fourths said they were making more. From these conversations we have arrived at the conclusion that the cry of "short crop" in Georgia is likely to prove a delusion. If we are not greatly mistaken, the receipts at ports will show an increase of 50,000 bales over those of last year.

The Dry Dock at Chicago is finished. It is situated between Van Buren and Harrison streets, on the west side, near Scammon and Haven's oil mill. It is built at right angles to the river, a very substantial lock similar to a canal lock opening into it. Length 236 feet—width 56 feet at the top and 37 feet at the bottom—depth of water above the blocks 8½ feet—and it has a capacity sufficient to admit and repair the largest sized sail vessels and propellers upon the lake. The dock is emptied by an engine of twenty horse-power, attached to a lifting water-wheel capable of throwing out 850 cubic feet of water per minute. The whole of the machinery is exceedingly simple. The dock was emptied on Tuesday in 2 3-4 hours, and can be filled in 3-4 of an hour.

Rewards to one Inventor.

We see in the list of awards at the exhibition of the Southern Central Agricultural Society, and the State Mechanical Institute, Georgia, held on the 22nd of last month, that our friend, A. D. Brown, of Opelika, Ga., was awarded three prizes, one a silver cup for the best cotton press; a silver cup for the best horse power, and a silver cup for the best bookbinders' presses.

A solution of shellac (which can be made by dissolving the shellac in alcohol) applied to joints affected with rheumatism, it is said will allay the acute pain and afford prompt relief.

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TO CORRESPONDENTS.

O., of N. J.—We have given our opinion on the same subject in a recent number of the Scientific American.

S. C., of Texas.—We have seen a rotary wheel driven by electricity of nearly the same features as yours, and which was applicable to the propulsion of vessels, but it is not a practicable engine, in comparison with steam. We advise you not to go into any expense in making an engine.

T. J. C., of Ohio.—There is no machine in use for the purposes stated, viz , engineering and surveying. A number of instruments are used.

C. F., of N. Y.—Your's just came to hand while about ready for the press.

H. H., of Va.- You will see a notice of Ericsson's engine in another column. Your plan is not like his, but we must know more about it before we can say whether it is or is not patentable.

W. D. E., of Miss.—We have seen models of such plows as you mention, and presume they are in use in some sections. If you wish your's examined, please to send a model or sketch and description.

L. B. F., of Mass.—The principle of your invention is substantially the same as Paine's Patent, and no patent can be obtained for it. The mode you have adopted for securing the window is not the same as Paine's, but yours possesses no advantages over his, and so long as the ventilating principle is the same, we cannot advise you to make an application. The amount sent for subscriptions has been employed for that purpose.

H. S. W., of Ohio.—There is nothing new or useful in your alleged improvement in the steam engine Your's and kindred devices have been known and have passed out of use.

J. W. A. R. M., of Canada.—It is utterly out of the question for us to think of republishing our first volumes. Many of the engravings are not in our possession, and it would require much time and labor to do justice to the work, more time than we could appropriate outside of our ordinary duties.

E. B , of N. Y.—Your arrangement is slightly different from anything we have ever before seen, and we think it involves a limited amount of novelty.

M. & E., of N. Y.—Your model was received with ten dollars on the 10th inst. We will proceed with your business in its turn, which will be about ten days hence.

G. W., 2nd, of O —One dollar received. All right.

J. J. J., of Pa.—Your's will receive attention The question had nothing to do with momentum, merely the revolution, as we stated, if the small wheel slides over its surface in every revolution, how much will it slide to make it describe a line as long as the large wheels.

A. J. of Ohio.—Gun barrels are browned by mixing up some nitric acid and water, and dissolving some copperas in it, and then apply it to the gun barrel with a cloth, merely moistening it, and then let it stand two days, when it will be coated with rust, brush this off with a wire brush, and do the same work over again, after which wash with warm water, then oil it and finish. The acid solution must be weak. Razors are etched by covering them with a varnish of beeswax and pitch, then removing the parts which you wish to etch, with an instrument, and biting in the metal with a weak acid, such as nitric mixed with water.

W. M. M., of Ill.—In a short time we will publish a series of articles on Artesian Wells. They are all supplied by rains, and this is what the Scriptures mean when they say, "the hills are watered from his chambers,"—chambers of heaven. When rains cease, springs cease to flow.

H. Van D., of N. Y.—We think it will be extremely difficult for you to get a patent for a mode of closing the buckets so as to give them any degree of aperture, it is described in Haviland & Tuttle's specification.

S. & K., of ——.—We have taken some pains to examine your letter, and have searched for information so that we might be able to give you as correct an answer as possible; we believe your plan is patent table; so far as we have been able to judge, it is a new and useful invention. It is our opinion that very few pockets are picked in our cities except in large crowds.

W. F. S., of Ala.—You may employ a plate of copper and zinc, alternately, with a division between each pair, and amalgamate the zinc plates with quicksilver. Use a solution of the sulphate of soda in the battery. There is no patent on this battery, nor on any of those in common use.

A. M., of N H.—Steel is a combination of iron and carbon in certain proportions.

A. .R., of Ala.—The art of stereotype printing is the invention of Lord Stanhope.

R. F., of Ga.—The carpets from England, called Kidderminster, derived their name from being originally made at that place, but they are now mostly made in Kilmarnock, in Scotland.

A. M. N., of Me.—The Toledo swords are celebrated for the excellence of the steel.

——, Bangor, Me.—Our correspondent at this place, who inquires about Wood's Pump, fails to sign his name to his letter, therefore we are unable to reply by letter. We can find no such patent; perhaps you had better write to the Commissioner o Patents; he would answer your inquiries under the circumstances.

P. B. S., of Baltimore.—Your invention is quite a different thing from what we supposed it to be from your former description. It is not, in our judgment, practicable, and we advise you to abandon it.

Money received on account of Patent Office business for the week ending Saturday. Nov. 13:—

H. R., of ——, $25; W. T., of N. Y., $40; M. R., of Me., $35; J. M., of Pa., $55; E P. R., of N. Y., $350; A. H. & Co., of Pa., $222; M. & E , of N. Y., $40; C. W., of N. Y., $10; L. N. L., of Mass., $20; H. M. & Co , of Mass., $30; T. A., of N. Y., $20; H. B , of N. Y., $20; R. & S., of N. J., $25; A. W., of Ct , $30; J. R. K., of Ga , $50; H. G., Jr., of N. Y., $25; J. G. P., of R I., $20; S. J. P , of Ct., $55; W. E. H , of N. Y., $20; S. & D., of N. H., $30.

Specifications and drawings belonging to parties with the following initials have been forwarded to the Patent Office during the week ending Saturday, Nov. 13:

S J. P., of Ct.; C & K., of Pa.; J. M., of Pa.; L. N. L , of Mass.; H. G., Jr., of N. Y.; E. N. B., of L. I.; S. & D., of N. H.

A Chapter of Suggestions, &c.

CHEAP POSTAGE.—The postage on the Scientific American, to subscribers residing within the State of New York, will be but 13 cts. per annum henceforth, instead of 13 cents per quarter as formerly, and will be delivered at the most remote parts of the United States for 26 cts. per annum, whereas the postage formerly demanded at distant offices was $1,20 per annum. The saving produced by the reduction of newspaper postage under the new statute, is no inconsiderable item, and many who could not afford to subscribe for the Scientific American, under the old law, can now withstand the expense.

PRIZES—Our subscribers will please to consider the great inducement offered to clubs, and to keep in mind the valuable prizes offered for the four largest lists of mail subscribers.

BACK NUMBERS AND VOLUMES—In reply to many interrogatories as to what back numbers and volumes of the Scientific American can be furnished, we make the following statement:—Of Volumes 1, 2 and 3—none. Of Volume 4, about 20 Nos., price 50 cts. Of Volume 5, all but four numbers, price, in sheets, $1. Of Volume 6, all; price in sheets, $2; bound, $2,75 Of Vol. 7, all; price in sheets, $2; bound, $2,75.

PATENT CLAIMS—Persons desiring the claims of any invention which has been patented within fourteen years, can obtain a copy by addressing a letter to this office—stating the name of the patentee, and enclosing one dollar as fee for copying

PATENT LAWS, AND GUIDE TO INVENTORS.—We publish, and have for sale, the Patent Laws of the United States. The pamphlet contains not only the laws but all information touching the rules and regulation of the Patent Office. Price 12 1-2 cts. per copy.

FOREIGN SUBSCRIBERS—Our Canada and Nova Scotia patrons are solicited to compete with our citizens for the valuable prizes offered on the present Volume. [It is important that all who reside out of the States should remember to send fifty cents additional to the published rates for each yearly subscriber; that amount we are obliged to pre-pay on postage.]

INFALLIBLE RULE—It is an established rule of this office to stop sending the paper when the time for which it was pre-paid has expired, and the publishers will not deviate from that standing rule in any instance.

RECEIPTS—When money is paid at the office for subscriptions, a receipt for it will always be given, but when subscribers remit their money by mail, they may consider the arrival of the first paper a bonafide acknowledgment of the receipt of the funds.

GIVE INTELLIGIBLE DIRECTIONS—We often receive letters with money enclosed, requesting the paper sent for the amount of the enclosure, but no name of State given, and often with the name of the post office also omitted. Persons should be careful to write their names plainly when they address publishers, and to name the post office at which they wish to receive their paper, and the State in which the post office is located.

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THE TROY IRON BRIDGE CO. are prepared to erect Iron Bridges or Roofs, or any kind of bearing trusses, girders, or beams, to span one thousand feet or under, of any required strength, in any part of the country. Their bridges will be subjected to severe tests, and can be built for about the price of good wooden ones. Address BLANCHARD & TELOUR, Troy, N. Y. 7 20

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IMPORTANT TO SOAP MAKERS—Letters Patent of the United States having been issued to Wm. McCord on the 27th of July, for a valuable improvement in Soap, all manufacturers, venders, and users are hereby cautioned against the use of Kaolin, or other equivalent aluminous minerals combined with ammonia, as they will, by so doing, infringe this patent, and subject themselves to prosecution. All the necessary fixtures for making 2000 lbs. per day, will cost not to exceed $75; two persons only required to attend the manufacture. Rights to manufacture this the most valuable soap, are offered for sale on reasonable terms. Apply to WM. McCORD, 141 Sullivan st., N. Y. 47tf

LOGAN VAIL & CO., No. 9 Gold street, New York, agents for George Vail & Co., Speedwell Iron Works, have constantly on hand Saw Mill and Grist Mill Irons, Press Screws, Bogardus' Horse-Powers, and will take orders of Machinery of any kind, of iron and brass; Portable Saw-mills and Steam Engines, Saw Gummers of approved and cheap kind, &c. Gearing, Shafting, large and small, cast or of wrought iron. 11 1y

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SCIENTIFIC MUSEUM.

Guano as a Manure.

We learn by that excellent monthly periodical, "The American Farmer," (Baltimore), that guano is doing wonders for some poor lands. One case is related of the Hon. James Pearce, who first applied guano in 1845, at the rate of 550 lbs. to the acre of very poor land. It was applied as a top dressing mixed with plaster, for a crop of wheat; the wheat was doubled in quantity, and fine clover succeeded it, and the effects were apparent in two other crops afterwards. There are many different opinions among our farmers respecting the value of guano as a manure. Some assert, that it does not produce results of a satisfactory character, according to its price, and that "it is all worn out in the first crop." Guano, like all other manures of an animal character, should be plowed into the soil, or laid in the hills or rows of crops that are planted and not sown. It is perhaps the best general manure in the world, and there are good and bad kinds of it, and farmers should know this. Johnston states, that of two kinds examined by him, taken from one box, one contained eight per cent. of sand, and the other only two per cent. Some kinds of guano only contain seven per cent of ammonia, while other parcels contain 25 per cent. Dr. Ure gives the following as the average result of his analyses of genuine guano. Organic matter capable of affording eight to seventeen per cent. of ammonia in the soil, fifty per cent.; water eleven; phosphate of lime, twenty-five; phosphate of magnesia, thirteen; sandy matter, one per cent.—making the one hundred parts. But very little guano is as rich as this in organic matter containing nitrogen. In the production of turnips, it has been found that land, top-dressed with guano, at the rate of 3 cwt. per acre, produced 23 tons 8 cwt. of Swedish turnips (ruta baga), while 20 tons of farm-yard manure, to the acre, only produced 18 tons 11 cwt. of turnips. An acre of land for potatoes was dressed with 3 cwt.of guano, and it yielded 18 tons 9 cwt. of potatoes; this was near Paisley, Scotland. An acre of wheat dressed with one cwt. of guano, yielded 48 bushels; and 3 cwt. of guano to the acre produced 64 bushels of barley. This is related on the authority of Prof. Johnston. There can be no doubt of the good qualities of guano as a manure, and on poor soil, or soil *worn out* by successive crops without manuring, some powerful fertilizer must be employed to redeem the soil from barrenness to fertility; guano appears to be the manure best adapted for this, but, at the same time it is best for farmers in the interior of our country, to conduct their system on the principle of making their own fertilizers, and obtaining them at as low a cost as possible. The nitrate of soda or nitrate of potash (saltpetre), ground along with charcoal, makes a most excellent compound, to be applied for top-dressing, along with an equal quantity of ground plaster; this can be obtained in many places of our country where guano cannot.

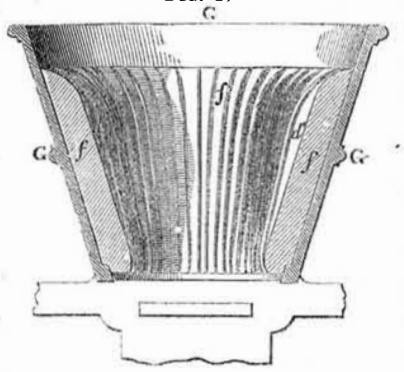
Influence of Poisons upon Animal Heat as a Cause of Death.

Dr. Sequard, of Paris, has published some peculiar views respecting his experiments with poisons, reducing animal heat. He says he has seen death take place in a rabbit after a diminution of its heat of only 22° of Fah., and he never observed any animal live after he had diminished its temperature more than 44° Fah. Accordingly as the heat is rapidly diminished, so is death produced in less time. When by a wound or poison the temperature of a man is reduced many degrees, his life is in danger from that very cause. It is thus in cholera, palsy, &c.

In cases of poisoning it has been found that the temperature of the person always decreased, and Chossut, who injected opium into the veins of a dog, found the temperature diminish from 105° to 62° Fah. M. Sequard believes that many poisons may kill simply by their action in reducing animal heat. He has found that some poisons which will kill animals when there is no obstacle to prevent the diminution of the body's temperature, will not destroy life when the temperature is sustained by artificial means to its normal degree.—Equal doses of poisons were given to two animals as much like one another as possible. One was left in a room at a temperature of 46° Fah., the other was kept in a place where the temperature was 75° Fah. The first was dead after a certain number of hours, the other that was kept warm was generally cured very soon. In cases of poisoning by opium, belladona, tobacco, camphor, alcoholic, acetic, oxalic acid, and many other poisons, physicians should labor to prevent a diminution of heat by keeping the patient as near as possible, by artificial means up to the standard of 100° Fah.

Snuff and its Manufacture.

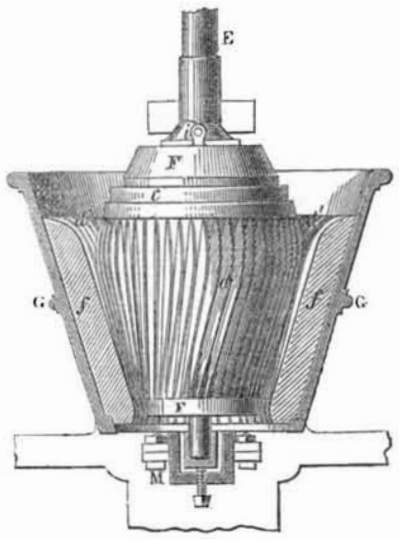
FIG. 1.



Although snuffing is not a national custom in America, the quantity of snuff made and used every year, is far greater than the majority of our people have any knowledge of, or than we could have believed, until we made some enquiries, and gathered up some information on the subject. But first let us explain its manufacture.

The leaves of tobacco intended for snuff are sorted and prepared with a sauce, which is different in some countries and manufactories. It is composed of sugar, some saltpetre and salammonia, and partially fermented, and the leaves are then tied up in bunches, in which state they are most portable and better for preservation. In England nothing but common salt is allowed to be added to snuff, and this is the custom here. In France, the tobacco used for snuff is generally of a superior character. It is first cut up with a revolving set of knives, fixed on a wheel, after which it is heaped in great masses in wooden bins

FIG. 2.



in a large chamber for fermentation. A pipe is introduced into the mass and the thermometer placed in it to regulate the heat. This process generally lasts for a number of months. When the temperature rises to 176°, acid, carbonate of ammonia and nicotine are given off. The air is excluded as much as possible, otherwise acetic acid by fermentation would take place. The mass must be carefully watched that it be not converted into humus. The whole is then ground in mills represented in the annexed figures, which are sections of the mill used in the French government manufactory.

Figure 1 shows the exterior cast metal casing, G, with its lining of thin iron blades, *d*, which are kept in their position by wedges of wood, *f f*. In figure 2 F is the revolving grinder, it is made of cast-iron with projecting segments held tight by an iron collar, *c*, M is the shaft box, and E is the shaft, to which motion is communicated, causing the grinder to revolve, and thus reduce the tobacco to snuff in the mill, a kind of bark mill. The whole apparatus may be of cast iron, and the tobacco ground quite damp, when going through the mill.

In England there are pestle mills; these which have pestles receive a motion by machinery and grind up the tobacco (which is quite dry for this operation) into fine snuff, like grinding any substance with a pestle in a mortar. The pestle is iron, and the mortar wood, but this snuff is first ground coarse under horizontal millstones; it is much prized for its particular grain by some connoisseur snuff-takers. Snuff can be colored with logwood and scented with various kinds of oils, There are particular mixtures for different snuffers; some like one kind and some another. The famous Lundy-foot Irish snuff was made out of dried tobacco which was supposed to be over-dried—too much roasted. It was the means, however, of making the fortune of its Dublin manufacturer. No less than 37,422 lbs. of snuff were exported from the United States last year; but the home consumption is far greater than this; more is manufactured, we believe, by a single firm in this city, that of Lorillard, the oldest snuff-making house in the United States, it having manufactured snuff before the revolution.

There are few Americans, as we said before, who take snuff, but many Germans and Frenchmen in the United States use it. There are different kinds manufactured, such as Macaboy, Rappee, Lundy-foot, and Scotch snuff. More of the latter is used than any other, not for snuffing, but for other purposes. In some of our Southern States the females use the Scotch snuff to clean their teeth, and excite their gums after meals by using the snuff along with a tooth stick. Tons of snuff are shipped from New York for North Carolina and Georgia to be used for this purpose. This snuff is also extensively employed for destroying vermin on vines, plants, &c. It is very dry and fine, but how it came to get its name is a query. Perhaps it was the kind manufactured by Gilbert Stuart's father, the first snuff machine mechanic who erected snuff mills in the colonies, and who was engaged in Scotland to come here for that purpose. It is the general custom in Scotland to grind their snuff very dry, and the attendants on the mills have a most disagreeble and unhealthy avocation. At one time the Scotch Highlanders were represented to be great snuffers, and it may be that some of the old settlers in Tennessee, who made their own snuff in their own natural mills, by drying the tobacco leaves, and then rubbing them to powder between the hands—real Lundy-foot—gave it the name which it now retains, but which is unknown as a *snuff-taken snuff* in Scotland at the present day, where there are ten smokers for one snuffer.

There are large snuff manufactories in Philadelphia, Baltimore, and some other places, as well as New York, but we have not been able to obtain a correct account of the amount manfactured yearly. We have received such information, however, as makes us distrust all published statistics, they come far short of the mark in giving the quantities. Any mill capable of grinding up tobacco leaves into powder is capable of making snuff. The color to any degree of darkness after the tobacco is ground is given by moistening it with a weak solution of the sulphate of iron, and then stirring it up well and adding logwood liquor until it is of the desired shade. Tonca beans and odiferous oils are employed to scent some snuffs, but such oils are not safe to use, they affect the brain and often produce vertigo. Lundy-foot is the safest snuff to use, because almost, it not all the nicotine is expelled by the partial roasting of the leaves. Snuffing, however, is a queer custom when a person reflects upon it, but not more so than smoking.

Salve for Burns.

Please publish the following valuable recipe for scalds and burns, having used it myself and seen its effects on others, I recommend it as having no equal, particularly in cases of scalding by steam from boiler explosions, &c.:—Take any quantity of unslacked lime, put water enough on it to cover the lime; let it stand an hour or more; take off the clear lime water, and to every pint of lime water add one pint of oil (olive or lard oil is preferable, but any kind of lamp oil will answer), put them in a bottle and shake well, and in a few minutes it will be fit for use. Bathe the part scalded as often as the nature of the case requires; if the skin be badly broken, lay over the wound a very thin piece of cambric muslin; this liniment will keep for years if corked tight in a bottle. Every family should keep it on hand as it costs but little. H. G. G.

LITERARY NOTICES.

THE DAUGHTERS OF ZION—By Rev. S. D. Burchard, D. D.; published by John S. Taylor, 143 Nassau street, N.Y. The above is the title of a new religious work devoted to an account of the most illustrious females of Israel, beginning with Sarah, the wife of the Patriarch Abraham, and concluding with the lives of those distinguished in the New Testament. As an addition to sacred literature, this little book will be interesting to a large class of readers, who are thus enabled to study with greater facility, the striking characteristics of the Jewish heroines of the Bible. It is written in an easy popular style, sufficiently intelligible for every capacity, and yet with proper respect for the dignity of Holy Writ. It can, therefore, be safely recommended as a useful work for perusal, which will aid in extending a more intimate acquaintance with many of those heroic daughters of Zion who acted so distinguished a part in the chronicles of Jewish History. We like to have forgotten to mention that the book is illustrated with several mezzotint engravings,

MINIFIE'S MECHANICAL DRAWING BOOK—Mr. Minifie, of Baltimore, has commenced publishing his excellent text book on Mechanical Drawing for self-instruction, in parts of 25 cents each. This will enable many to take it who would otherwise not do so by paying the whole at once. It is the best work of the kind ever published in our country. For sale by Dewitt & Davenport, 156 Nassau street, this city.

"DELIA'S DOCTORS—Or, A Glance Behind the Scenes," by Hannah Gardner Creamer.—This is the title of an interesting work just published by Messrs. Fowlers & Wells (12mo., 362 pages). In this work many wholesome ideas are conveyed under the form of a satirical comment on prevailing social customs and institutions, not even sparing the time-hallowed professions of Medicine and Divinity. The work contains, also, several lively sketches of rural life in New England, evidently drawn from nature, which show a capacity in the writer promising for the future.

THE TEMPERANCE REFORMATION.—Fowlers & Wells, New York. The author of the above named work (Rev. L. Armstrong) pleads very enthusiastically in favor of the introduction of the Maine Liquor Law into the State of New York. In the third, fourth, and following chapters he analyzes the reasons set forth by the remonstrants against the introduction of the law, which he irrefragably demolishes to his own satisfaction. In the prospective effects of the Maine Law, if obtained as a Statute of New York State, we are enlightened as to what will be the future condition of our population. In addition to other information, such as a history of the Temperance Cause and its progress, there are several *spirited* tales and anecdotes, with a re-print of the Maine Liquor Law, and six reasons for its adoption by the people of New York.

THE PRINCIPLES OF HYDROPATHY—Fowlers & Wells, New York. This is a cheap little book, the price being only 12 1-2 cents, explaining the principles of the Water Cure System. The author states that he was cured from the verge of the grave by its treatment. *Credat Judæus!!*

OLIVE BRANCH—Boston, Mass.; published every week, at $2 per annum, by Thos. F. Norris. A new volume of this sterling family paper, commences its eighteenth year in a few weeks.

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